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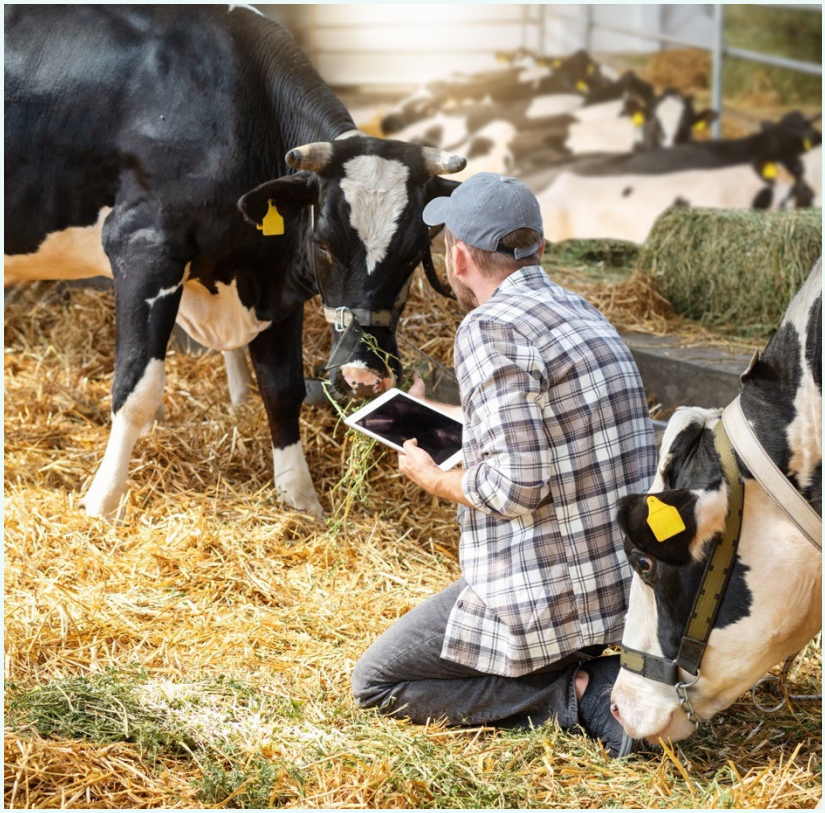

European sales and use of antimicrobials for veterinary medicine

Annual surveillance report for 2024

An agency of the European Union

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Foreword by Ivo Claassen

Ivo Claassen, Head of Veterinary Medicines Division, Deputy Executive Director European Medicines Agency

I am pleased to present the second report on the European Sales and Use of Antimicrobials in veterinary medicine.

Sales data remain essential for tracking overall trends of antimicrobial consumption in the veterinary sector, but they have limitations, such as the lack of species-level detail and the disconnect from actual administration and use.

With the progressive implementation of use data reporting at species level, we are entering a new phase - one that repositions our focus toward more structured and differentiated data. Use data allow us to move beyond general consumption trends and begin to explore the differences in antimicrobial use within and across species. This represents a strategic shift in the surveillance framework.

We are still in the early stages of this journey. Many countries are working hard to improve the completeness and granularity of their use data, and it is important that these efforts continue to be supported across the board. The potential of use data is immense, not only for monitoring use by animal species, but also for integrating with resistance data and other surveillance streams to inform more targeted and effective actions to reduce the development of antimicrobial resistance. As data quality and coverage improve, use data will become increasingly valuable for supporting One Health objectives, guiding stewardship efforts, and enabling smarter, evidence-based decisions at both national and EU levels.

This is only possible thanks to the sustained efforts of Member States, who continue to build and refine their national systems for collecting antimicrobial use data by animal species. I want to acknowledge the critical role of veterinarians and other data providers in this process — their contributions are central to the quality of the data.

I encourage Member States to maintain and strengthen these efforts in the coming years, as the scope of species-level reporting expands in line with the legislative requirements. Continued commitment will be vital for building a comprehensive picture of antimicrobial use in animals and for ensuring that our surveillance remains relevant, reliable, and impactful.

Readers are invited to explore the ESUAvet sales public dashboards, which will be launched alongside this report. These dashboards will make sales data more accessible to a wide range of audiences — including policymakers, researchers, and the general public — and will continue to evolve over time. It is foreseeable that dashboards for use data will also be developed in the future, further enhancing the transparency and utilisation of ESUAvet data.

I want to take this opportunity to thank all those contributing to the different stages of preparing this publication for their dedicated work. With ESUAvet, we are not just collecting data — we are building trust, enabling action, and contributing to a healthier future for all. Reliable data support smarter decisions and safer communities. By turning data into insight, we empower countries to take informed action against antimicrobial resistance.

Highlights

During 2025, 29 reporting countries — 27 EU countries, Iceland and Norway — reported 2024 data to the European Medicines Agency (hereinafter 'the Agency' or EMA) on the volume of sales of antimicrobial veterinary medicinal products (VMPs) and on the use of antimicrobial medicinal products in animals under Article 57 of Regulation (EU) 2019/6. The transition to species-level use data marks a significant step forward in understanding antimicrobial exposure in animals. Sales and use data are complementary but distinct: sales data reflect the volume of antimicrobials placed on the market and have long served as a proxy for estimating consumption, but do not indicate the species in which a product was ultimately used when authorised for multiple species. Collecting antimicrobial use data by species and animal categories will bridge this gap.

This was the second year countries reported data to the Agency under this legal framework.

Volume of sales of antimicrobial VMPs in 2024

The definition of antimicrobial in the veterinary medicines legislation covers antibiotics, antivirals, antifungals and antiprotozoals. The antimicrobial substances in VMPs that fall under the **mandatory scope** all have **antibiotic activity** and are in VMPs formulated for systemic, intramammary and intrauterine use. Overall EU sales in 2024 of antimicrobial VMPs in the mandatory scope were 4,402.8 tonnes. This scope covers the same antimicrobials as those included in the ESVAC project. Most countries (26 out of 29) reported a coverage between 98% and 100% for the sales data under the mandatory scope. Additionally, 17 countries also provided sales data under the voluntary scope (52.5 tonnes) that consisted of antibacterials for topical use, as well as antiprotozoals, antifungals and antiinfectives. Among those countries that also reported voluntary data, 10 countries indicated a high coverage (between 90% and 100%), while 7 reported incomplete or unknown coverage. In 2024, wholesalers remained the most common choice of data provider.

The results presented in this report focus on sales data within the mandatory scope. The main indicator for population-adjusted ESUAvet sales is **mg/kg animal biomass** (hereinafter '**mg/kg**').

Sales of antimicrobial VMPs under the mandatory scope (i.e. antibacterials) for use in food-producing animals represented 98.5% of all reported sales in tonnes. A considerable difference is observed between reporting countries with the highest and lowest sales, ranging from 1.8 mg/kg to 112.9 mg/kg, while the EU aggregated sales were 46.1 mg/kg. Compared to 2023, EU sales for food-producing animals increased by 5.1%, while the estimated EU biomass remained approximately the same. Cattle, pigs and chickens continued to represent the majority of the EU's estimated food-producing biomass.

Penicillins and tetracyclines remained the most sold antimicrobial classes in the EU in 2024, followed by macrolides. Together, these three classes accounted for 65.5% of the antimicrobial VMP sales for food-producing animals. In general, sales patterns varied substantially across the 27 EU countries, including when stratified by **AMEG category.** At EU level, 67.6% of total EU sales for food-producing animals corresponded to substances that belong to category D (prudence), 26.4% to category C (caution) and 6.0% to category B (restrict). At country level, AMEG B antimicrobials — 3rd- and 4th-generation cephalosporins, fluoroquinolones, other quinolones and polymyxins — accounted for 0.03% to 15.9% of total sales, with 7 reporting countries recording proportions above 10%. Of aggregated sales for food-producing animals, 86.0% corresponded to product forms predominantly used for group

treatment, a proportion similar to that observed for 2023. Among these product forms, sales of premixes declined, while sales of oral solutions increased.

Sales of antimicrobial VMPs authorised solely for other animals kept or bred (mainly companion animals, predominantly dogs and cats) under the **mandatory scope** represented 1.5% of all reported sales in tonnes. A large difference was observed between countries with the highest and lowest sales, ranging from 10.6 mg/kg to 107.3 mg/kg, while the aggregated sales for the EU were 34.3 mg/kg, a decrease of 8.2% compared to 2023. Tablets were the highest-selling product form, accounting for 91.5% of the total antimicrobial VMP sales for other animals kept or bred.

The most sold antimicrobial class for other animals kept or bred in the EU in 2024 was penicillins accounting for 48.4% of overall sales, followed by 1st- and 2nd-generation cephalosporins (16.9%) and imidazole derivatives (12.9%). Categorised per **AMEG category**, 71.5% of total EU sales for other animals kept or bred corresponded to substances belonging to category C (caution), primarily driven by sales of penicillins in combination with beta-lactamase inhibitors. Substances in AMEG category D (prudence) and AMEG B (restrict) accounted for 25.8% and 2.5% of sales, respectively. At country level, AMEG B antimicrobials accounted for 0.1% to 8.0% of total sales. These proportions remained comparable with those observed in 2023.

EU antimicrobial sales reduction target: 50% reduction in overall sales for farmed animals and aquaculture by 2030

The European Commission has set targets as part of its actions against antimicrobial resistance, including an aspirational goal to reduce overall EU sales of antimicrobials for farmed animals and in aquaculture by 50% by 2030, with 2018 as the reference year.

The 2018 reference value (established using ESVAC data and methodology) for overall sales of antimicrobial VMPs in the EU is 118.3 mg/PCU, which sets the target for 2030 at 59.2 mg/PCU. In 2024, aggregated sales in the EU were 89.6 mg/PCU, a reduction of 24.3% compared to 2018. However, 2024 marked the second consecutive year of increased sales, following the lowest recorded value in 2022.

Use of antimicrobials in animals

For the second year, countries reported data to the Agency on the use of antimicrobials in cattle, pigs, chickens and turkeys, covering 2024. As in 2023, veterinarians remained the main providers of use data in 2024, with the main data sources being veterinary practice records, although other sources such as treatment logbooks and prescriptions were also used. All 29 countries reported use of antimicrobial medicinal products from the **mandatory scope** for at least one of these species, and 14 countries also provided use data from the voluntary scope. However, not all countries were able to report mandatory use data by animal species categories as required per legislation, and variability in coverage and accuracy persist across species and countries.

EU countries that reported use data with at least 90% coverage (an agreed benchmark for this report) accounted for 23% of the estimated EU cattle biomass (8 countries), 51% of the pig biomass (11 countries), 34% of the chicken biomass (12 countries) and 35% of the turkey biomass (14 countries). Given the variability in the completeness and granularity of the reported use data for 2024, EU-level aggregations are not presented in this report to avoid misleading interpretations and comparisons

between animal sectors based on data with varying accuracy and coverage. Continued efforts are needed to improve the quality of data in order to enable consistent reporting of quantitative data, including trends, in all countries and at EU level.

In countries with ≥90% coverage, species-level analysis of antimicrobial use data (expressed as percentages of tonnes used) showed that tetracyclines and penicillins were among the most used antimicrobial classes in cattle, pigs, chickens and turkeys. Nonetheless, notable variations were observed at both species and country level. Use by product form also differed between species: injectable products were the most commonly used in cattle, oral forms (particularly oral solutions and premixes) in pigs, and oral solutions in chickens and turkeys. While this analysis was performed at species level, future analysis of use data by animal category will likely reveal additional patterns. These observations already point to species- and country-specific differences.

Introduction

The Agency has been monitoring antimicrobial consumption in animals for more than a decade with the previous ESVAC project, with voluntary participation growing from 9 to 31 European countries over the years. Surveillance of antimicrobial consumption in animals became a legal obligation under Article 57 of Regulation (EU) 2019/6, and the ESVAC project concluded in November 2023 with the publication of its final annual report[2].

As of January 2024, all EU countries, Iceland and Norway must report data on the volume of sales of antimicrobial VMPs and on the use of antimicrobial medicinal products in animals to EMA. In turn, the Agency must analyse those data in cooperation with reporting countries and publish annual reports[3] known as the ESUAvet Annual Surveillance Reports, the first of which was published in March 2025, presenting 2023 data.

Legal framework

The legal framework behind the collection and publication of data on the volume of sales and on the use of antimicrobial medicinal products in animals can be found in three main legal acts:

- Article 57 of Regulation (EU) 2019/6 on veterinary medicinal products[3]
- Commission Delegated Regulation (EU) 2021/578[4]
- Commission Implementing Regulation (EU) 2022/209[5]

What is stated in Article 57 of Regulation (EU) 2019/6?

This article sets the obligation for Member States to collect and report data to the Agency on the volume of sales of VMPs and the use of antimicrobial[6] medicinal products (both veterinary and human[7]) in animals to enable, in particular, the evaluation of the use of such products in food-producing animals. **This act has been incorporated into the European Economic Area Agreement and is also applicable to Iceland and Norway.** Therefore, the provisions described below apply to all ESUAvet reporting countries, i.e. the 27 EU countries, Iceland and Norway. The Agency will cooperate with ESUAvet reporting countries and other Union agencies and publish annual reports.

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[2] Thirteenth ESVAC report
[3] Regulation (EU) 2019/6 of the European Parliament and of the Council of 11 December 2018 on veterinary medicinal products and repealing Directive 2001/82/EC.
[4] Commission Delegated Regulation (EU) 2021/578 of 29 January 2021 supplementing Regulation (EU) 2019/6 of the European Parliament and of the Council with regard to requirements for the collection of data on the volume of sales and on the use of antimicrobial medicinal products in animals.
[5] Commission Implementing Regulation (EU) 2022/209 of 16 February 2022 establishing the format of the data to be collected and reported in order to determine the volume of sales and the use of antimicrobial medicinal products in animals in accordance with Regulation (EU) 2019/6 of the European Parliament and of the Council.
[6] As per Article 4(12) of Regulation (EU) 2019/6, 'antimicrobials' are defined as any substance with a direct action on micro-organisms used for treatment or prevention of infections or infectious diseases, including antibiotics, antivirals, antifungals and antiprotozoals.
[7] As per Articles 112–114 of Regulation (EU) 2019/6, if no authorised VMPs are available or authorised for a particular animal or disease in their country, under exceptional circumstances and in particular to avoid unacceptable suffering, the veterinarian is allowed to use the prescription 'cascade' subject to certain conditions. For more information, please refer to the Commission Implementing Regulation (EU) 2024/1973.

What is stated in Commission Delegated Regulation (EU) 2021/578?

This legal act outlines the requirements and timelines for reporting of both data on the volume of sales of antimicrobial VMPs and on the use of antimicrobial medicinal products in animals. Key points include:

- **Medicinal products data collection and reporting scopes**: specifying for which antimicrobial medicinal products Member States must collect and report sales (only VMPs) and use (both veterinary and human medicinal products) data to the Agency (refer to Annex 2 for more details).
- **Obligations of Member States and of the Agency**: detailing the responsibilities regarding quality assurance and data quality requirements.
- **Data collection and reporting methods**: describing the data requirements and methods for collecting and reporting data to the Agency.
- **Use data by animal species and categories**: defining the progressive stepwise approach for Member States to collect and report use data by animal species and categories. The three steps of this approach are outlined below, including the first year in which Member States must report the specified data to the Agency **for the preceding calendar year**:
  - From 2024, use data must be reported for cattle, pigs, chickens and turkeys.
  - From 2027, use data must be reported for other food-producing animal species: other poultry (duck and geese), sheep, goats, finfish (Atlantic salmon, Rainbow trout, Gilthead seabream, European seabass, Common carp), horses, rabbits, and any other food-producing animals of relevance to the Member State.
  - From 2030, use data must be reported for other animals kept or bred: dogs, cats and fur animals (minks and foxes).
- **Annual reports and timelines**: specifying the data and analyses to be included in the Agency's annual reports and the timelines for its publication, including deadlines for Member States to submit their data.

What is stated in Commission Implementing Regulation (EU) 2022/209?

This legal act establishes the data format that Member States must use to report data to the Agency on antimicrobial VMP sales and on use of antimicrobials in animals. It also defines the specific variables that must be provided for each product presentation, enabling the Agency to calculate the quantity of antimicrobial active substance(s) for each product sold or used. Additionally, it requires that Member States provide animal population data in a specific format, allowing the Agency to adjust the data for the relevant animal populations for analysis purposes, as per Article 5.1 of this act.

EMA has published various manuals and guidelines to support countries implement the legal requirements. Therefore, the legislation should be read in conjunction with the following materials[8]:

- Antimicrobial use data reporting per animal categories (numerator) - Manual for reporting the data to the Agency[9]

[8] For access to all ASU-related documentation published by the European Medicines Agency, please refer to the Antimicrobial Sales and Use Platform
[9] Antimicrobial use data reporting per animal categories (numerator) (EMA/757638/2021)

- Guideline on the reporting of antimicrobial sales and use in animals at the EU level – denominators and indicators[10]
- Antimicrobial Sales and Use (ASU) technical implementation protocol[11]
- Manual for Member States for establishing a data quality management plan for the collection of antimicrobial sales and use data under Regulation (EU) 2019/6 and its delegated and implementing regulations[12]

Aim and scope of the ESUAvet annual reports

The main aims of the Agency's annual reports are to document both at national and Union level:

- detailed and comparable data on the volume of sales of veterinary antimicrobials and of the use of antimicrobials in animals;
- changes in trends and patterns on the volume of sales of veterinary antimicrobials and of the use of antimicrobials in animals.

Which antimicrobial substances are covered by the ESUAvet reports?

The data that countries must collect and report is defined by legislation and is based on the World Health Organization (WHO) Anatomical Therapeutic Chemical (ATC) classification and the Anatomical Therapeutic Chemical veterinary (ATCvet) systems[13,14] .

The antimicrobial medicinal product's ATCvet (for VMPs) or ATC (for human medicinal products – HMPs) code determines if the sales or use data reported fall under either the **mandatory** or the **voluntary** data collection and reporting scope[15]:

- The antimicrobial substances in the medicinal products that fall under the **mandatory** scope are antibacterials, antiprotozoals with antibacterial effect[16], intramammary antimycobacterials, and antiinfective agents, all of which have antibiotic activity[17].
- The **voluntary** scope includes antivirals, antifungals, topical antibacterials, antiprotozoals, antiinfectives, and antimycobacterials for systemic use.

The scopes are summarised in Figure 1.

[10] Guideline on the reporting of antimicrobial sales and use in animals at the EU level – denominators and indicators (EMA/CVMP/882931/2022)
[11] Antimicrobial Sales and Use (ASU) technical implementation protocol (EMA/27838/2024)
[12] Manual for Member States for establishing a data quality management plan for the collection of antimicrobial sales and use data under Regulation (EU) 2019/6 and its delegated and implementing regulations (EMA/CVMP/ESUAVET/570091/2023)
[13] More information about the ATC code classification system is available at https://atcddd.fhi.no/
[14] More information about the ATCvet code classification system is available at https://atcddd.fhi.no/atcvet/
[15] According to Articles 1-4 of Commission Delegated Regulation (EU) 2021/578.
[16] Specifically concerns sulfonamides, which in the ATCvet system are classified as both antibacterial and antiprotozoal. In the context of these reports, sulfonamides are only presented under the class of 'antibacterials'.
[17]As per Article 4(12) of the Regulation (EU) 2019/6, "antibiotic means any substance with a direct action on bacteria that is used for treatment or prevention of infections or infectious diseases".

Figure 1. Illustration of the two ESUAvet reporting scopes

For a list of the ATC(vet) codes that determine the antimicrobial medicinal products under surveillance please refer to Table A6.

To harmonise the reporting of antimicrobial sales and use data in this report with the data on sales of antimicrobial substances used in human medicine, the data are presented according to the classes/subclasses referred in Table A8.

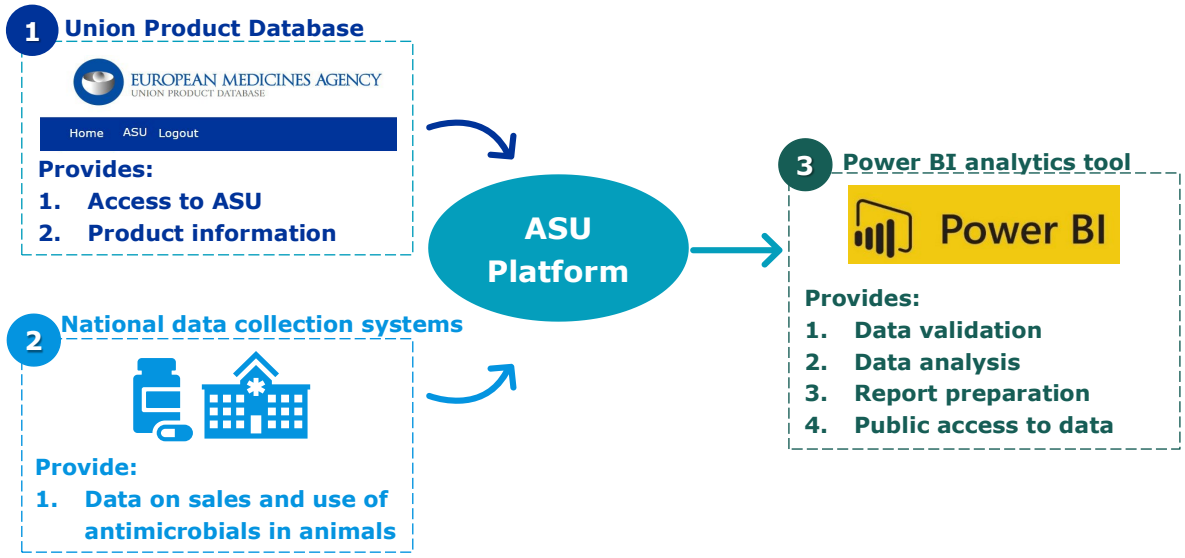
ASU Platform

This report is based on data reported by countries via the ASU Platform, the new IT system developed by the Agency to support the new data collection and reporting activities under Article 57 of Regulation (EU) 2019/6.

What is the ASU platform?

In essence, the ASU Platform is an IT system that enables the reporting, storage, analysis, and dissemination of data on the volume of sales of antimicrobial VMPs and the use of antimicrobial medicinal products in animals. Countries must also use this system to submit the animal population data required to normalise the sales and use data by the population at risk for being treated with antimicrobials.

Figure 2. Components and functionalities of the ASU Platform



The ASU Platform was developed in line with the legal requirements set out in the aforementioned legal acts, superseding the ESVAC application. All ESVAC data have been migrated to the ASU Platform for its preservation and use in potential trend analyses.

The ASU Platform has two components: the web interface for countries to submit their collected data and a Power BI application tool that enables data validation and analysis by reporting countries and the Agency (Figure 2). For more information on the methodology used in the ASU Power BI application to analyse the data please see Annex 2.

The ASU Platform is integrated with two other key EMA IT systems: the Substance, Product, Organisation and Reference (SPOR) data management services and the Union Product Database (UPD). SPOR acts as a source of substance, human medicinal product, organisation and other reference data. UPD primarily serves as the source of veterinary medicinal product information data used by the ASU Platform to prefill the sales and use templates for each country. These templates are then completed by reporting countries with the number of packages sold or used per product presentation, allowing for the calculation of the antimicrobial active substance(s) content (in grams) per product presentation[18].

What added value does the ASU Platform bring?

The ASU Platform provides an environment for countries to submit sales, use and animal population data in a standardised format, supporting harmonisation and data quality. The integration with other EMA IT systems avoids duplication of data input across systems and ensures a single source of information, thereby reducing administrative burden compared to the previous ESVAC system. Finally, it also leverages the capabilities of the previous system by offering an improved user interface and enhanced data analysis functionalities.

About ESUAvet Working Group (WG) activities

The ESUAvet WG[19] was established in June 2023 to provide strategic guidance and recommendations to the Agency and its Committee for Veterinary Medicinal Products (CVMP) on matters related to Article 57 of Regulation (EU) 2019/6. This includes providing advice on the collection and analysis of data, liaising with the relevant national bodies, and supporting the Agency in meeting its obligations regarding the surveillance of antimicrobial sales and use data in animals in the EU, including the preparation of the ESUAvet annual reports.

Furthermore, the ESUAvet WG serves as a forum for exchanging information on the collection, reporting and interpretation of the antimicrobial sales and use data, pooling knowledge and practices, and furthering cooperation between countries in this area. The working group comprises one member and one alternate from each of the 27 EU countries, Iceland and Norway, nominated by their country's national competent authorities.

In addition to the ESUAvet WG, the data reporting activities behind this report are supported by a network of national contact points and ASU data managers who report data to the Agency via the ASU Platform. Both national contact points and ASU data managers are nominated by national competent authorities or directly by the ESUAvet member of their country.

[18] For further information on how the ASU templates should be completed by countries, please refer to the Antimicrobial Sales and Use (ASU) technical implementation protocol (EMA/27838/2024)
[19] More information available on the European Medicines Agency website here.

About this report

The second ESUAvet annual surveillance report presents data on the volume of sales of antimicrobial VMPs and use of antimicrobial medical products in animals in 2024 that were collected by EU countries, Iceland and Norway and submitted to the Agency. These data should be provided in compliance with the legal requirements and the Agency's reporting protocols[20].

This report has the following two main result sections:

- **Volume of sales antimicrobial VMPs** (Section 1): the section begins with an overview of all antimicrobial VMP sales as reported by countries to the Agency under both the mandatory and voluntary reporting scope. Next, results are focused on the volume of sales for **antimicrobials in the mandatory scope**, presented separately for food-producing animals and other animals kept or bred. An update on the progress made towards the EU antimicrobial sales reduction target is provided in Section 3.
- **Use of antimicrobial medicinal products in animals** (Section 2): the section begins with an overview of all antimicrobial use in cattle, pigs, chickens and turkeys as reported to the Agency by countries under both the mandatory and voluntary scope. A qualitative overview of the use data within the mandatory scope is presented separately for each of the above-mentioned animal species, including country-level analysis when coverage ≥90%.

The quantities of antimicrobial active substance sold or used are expressed using the following metrics[21]:

- Tonnes sold (expressed in mg when used as numerator).
- Proportion of total sales or use (in tonnes).
- Milligrams sold per kilogram of animal biomass (mg/kg). ESUAvet sales data collected under Article 57 of Regulation (EU) 2019/6 are analysed using this indicator, as established in the respective guideline[21].

$$\frac{\text{Quantity antimicrobial active substance in mg}}{\text{Animal biomass in kg}}$$

- Milligrams sold per kilogram of PCU (mg/PCU). This indicator is only used for monitoring the progress towards the EU antimicrobial sales reduction target (Section 3 and Annex 6) and is different from the mg/kg indicator in that it follows the previous ESVAC methodology for analysing sales data[22].

In addition to the total reported sales or use, this report focuses on certain classes or subclasses of antimicrobials, product forms, and the EMA's Antimicrobial Advice *ad hoc* Expert Group (AMEG) categorisation from 2019. The AMEG categories, available on the EMA website[23], consider the need for these antimicrobials in veterinary medicine, the probability of antimicrobial resistance (AMR) transfer

[20] Available on the European Medicines Agency website here.
[21] For more detailed information on the indicators used in this report, please refer to the Guideline on reporting antimicrobial sales and use in animals at the EU level – denominators and indicators (EMA/CVMP/882931/2022).
[22] For more information on the transition from ESVAC and ESUAvet sales, please refer to Annex 5 of the first ESUAvet report: https://www.ema.europa.eu/en/documents/report/european-sales-use-antimicrobials-veterinary-medicine-annual-surveillance-report-2023_en.pdf
[23] EMA/AMEG 2019, 'Categorisation of antibiotics in the European Union. Answer to the request from the European Commission for updating the scientific advice on the impact on public health and animal health of the use of antibiotics in animals' EMA/CVMP/CHMP/682198/2017.

from animals to humans, and the WHO Critically Important Antimicrobial List for Human Medicine (6th revision)[24].

Further information on the methodology used to analyse the data (Annex 2), the list of substances for which sales and use data have been reported to EMA since 2023 (Annex 3), the data quality checks performed on the reported data (Annex 4), corrections of ESUAvet historical data (Annex 5), country trends from preceding years (Annex 6), among others, can be found in the corresponding annexes of this report. For more information on the transition from ESVAC to ESUAvet sales reporting, please refer to Annex 5 of the first ESUAvet report[25].

The data and information included in this report have been reviewed and endorsed by the ESUAvet WG and adopted by the CVMP prior to publication on the EMA website. All datasets were approved for publication and data were extracted from the ASU Platform on 5 November 2025. Published reports are not updated when changes to data are submitted to the ASU Platform. Therefore, minor discrepancies may occur between ESUAvet reports from different years and between reports and the **ESUAvet sales public dashboard**.

[24] This list has been revised and replaced by the WHO List of Medically Important Antimicrobials: a risk management tool for mitigating antimicrobial resistance due to non-human use.
[25] For more information on the transition from ESVAC and ESUAvet sales, please refer to Annex 5 of the first ESUAvet report: https://www.ema.europa.eu/en/documents/report/european-sales-use-antimicrobials-veterinary-medicine-annual-surveillance-report-2023_en.pdf

1. Volume of sales of antimicrobial VMPs

This section presents the volume of sales of antimicrobial VMPs reported by the 29 reporting countries (i.e. 27 EU countries, Iceland and Norway) for 2023 and 2024.

Sales of antimicrobial VMPs under the mandatory scope, for the EU and per country, are also available in the **ESUAvet sales public dashboard**.

Disclaimers for sales data:

- In this report, data are primarily presented for the EU. Data for all reporting countries (EU countries, Iceland and Norway) are nearly identical in numerical values to the EU. Notable deviations, if any, are highlighted in the text.
- It is generally accepted that establishing a valid baseline for the sales data requires at least three to four years. Given the previous reporting period under the ESVAC project, countries have been collecting sales data for longer than this period, it is reasonable to assume that the data presented in this report offer a representative overview of antimicrobial VMP sales across the EU.
- Sales of antimicrobial VMPs are automatically assigned by the ASU system to sales for food-producing animals when the antimicrobial VMP has a withdrawal period. However, some of the products assigned a withdrawal period are marketed for both food-producing and other animals kept or bred. This is particularly noticeable for VMPs authorised for use in fur animals. As a result, sales intended for other animals kept or bred may be slightly underestimated.
- The biomass denominator for other animals kept or bred is a recent addition to the reporting framework of sales data, therefore some caution is warranted when interpreting sales expressed in mg/kg for this animal group. While this denominator provides a basis for normalising sales data, several years of data may be needed to assess its consistency. The denominator includes dogs, cats and fur animals, with the latter representing a relatively minor share of the EU's biomass for other animals kept or bred but potentially more relevant in individual countries where fur animals are kept.
- Sales data presented in the ESUAvet annual surveillance reports are not directly comparable with sales published in the historical ESVAC reports[26] due to methodological differences. Exceptions are presented in Section 3 and Annex 6 for the purpose of monitoring the EU antimicrobial sales reduction target.
- The data presented in this report should not be used as a sole basis for setting management priorities as national differences in animal demographics, availability of medicines, disease incidence and outbreaks, production systems, and policies, amongst others, should also be considered. Moreover, as sales data collected at national level can be sourced from different providers, the **data presented in this report should not be used for direct comparison between countries**.
- Country-level data in ESUAvet reports may differ from those presented in national reports due to various factors, including differences in the chosen inclusion criteria for antimicrobials and indicators used. Therefore, the **data presented in the ESUAvet annual surveillance report should not be directly compared to data presented in national reports**.

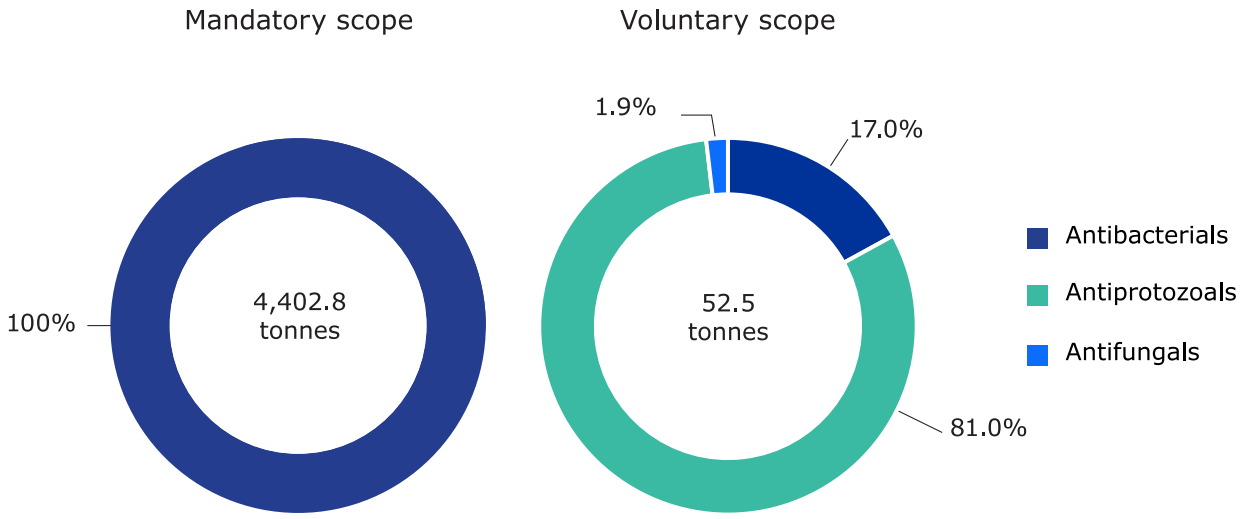
[26] For detailed information, please refer to Annex 5 of the first ESUAvet report: https://www.ema.europa.eu/en/documents/report/european-sales-use-antimicrobials-veterinary-medicine-annual-surveillance-report-2023_en.pdf

1.1. Overview of reported sales of antimicrobial VMPs

Sales of antimicrobial VMPs reported under the mandatory scope concern only antibacterials with antibiotic activity in products formulated for systemic, intramammary and intrauterine use. In 2024, a total of 4,402.8 tonnes of these antimicrobials were sold in the EU, 4,408.8 when including Iceland and Norway (Figure 3, Table 1).

As per legislation[27], countries must select appropriate data providers to ensure full coverage of sales data. These include MAHs, retailers, feed mills, pharmacies or veterinarians. For 2024, there were no significant changes in the selection of data providers compared to 2023. Wholesalers remained the most commonly used data provider, selected by 18 reporting countries, followed by MAHs (12 countries), feed mills (6 countries), pharmacies (3 countries), veterinarians (1 countries) and retailers (1 country) (Table A1). The vast majority of countries (26 out of 29) indicated a coverage between 98% and 100%, with 1 country reporting coverage above 95%, another above 90%, and one indicating incomplete coverage (Table A1). These figures indicate a high level of completeness of the data reported under the mandatory scope.

Figure 3. Proportion of reported sales (in tonnes) of antimicrobial VMPs by antimicrobial category[1] and scope[2] in the EU in 2024[3]



[1] The ASU Platform groups antimicrobial substances in categories, classes and subclasses taking into account the ATCvet codes in the Annex to Commission Delegated Regulation (EU) 2021/578 and the ATC(vet) classification system (see Annex 3).
[2] Sales data subject to mandatory and voluntary reporting. In 2024, 17 countries reported sales data from the voluntary scope.
[3] The mandatory scope only concerns substances with antibiotic activity in products that are formulated for systemic, intramammary and intrauterine use. Under the voluntary scope, antiinfectives represented 0.2% of the EU sales (not shown in this figure). No sales data were reported for antimycobacterials or antivirals in 2024.

In addition, 17 countries also reported sales data under the voluntary scope, which covers sales of antivirals, antifungals, topical antibacterials, antiprotozoals and antiinfectives. Of the 52.5 tonnes reported under this scope in the EU in 2024, antiprotozoals accounted for the largest proportion (81.0%), followed by topical antibacterials (17.0%), antifungals (1.9%) and antiinfectives (0.2%) (Figure 3, Table 1).

[27] Article 11 of the Commission Delegated Regulation (EU) 2021/578.

Table 1. Reported sales of antimicrobial VMPs, in tonnes, by antimicrobial category[1], reporting scope[2] and country, for 2024

	Antibacterials	Antifungals	Antiinfectives	Antiprotozoals	Total reported
Austria					
Mandatory scope	36.2	-	-	-	36.2
Voluntary scope	-	-	-	-	-
Belgium					
Mandatory scope	116.9	-	-	-	116.9
Voluntary scope	-	-	-	-	-
Bulgaria					
Mandatory scope	39.0	-	-	-	39.0
Voluntary scope	0.22	0.09	-	0.45	0.76
Croatia					
Mandatory scope	17.3	-	-	-	17.3
Voluntary scope	0.20	0.02	-	0.04	0.26
Cyprus					
Mandatory scope	22.8	-	-	-	22.8
Voluntary scope	0.04	0.02	-	0.12	0.18
Czechia					
Mandatory scope	31.2	-	-	-	31.2
Voluntary scope	-	-	-	-	-
Denmark					
Mandatory scope	79.0	-	-	-	79.0
Voluntary scope	-	-	-	-	-
Estonia					
Mandatory scope	5.1	-	-	-	5.1
Voluntary scope	-	-	-	-	-
Finland					
Mandatory scope	8.2	-	-	-	8.2
Voluntary scope	0.04	0.04	-	0.10	0.18
France[3]					
Mandatory scope	272.0	-	-	-	272.0
Voluntary scope	-	-	-	12.1	12.1

	Antibacterials	Antifungals	Antiinfectives	Antiprotozoals	Total reported
Germany[4]					
Mandatory scope	561.7	-	-	-	561.7
Voluntary scope	1.7	0.25	-	-	1.9
Greece					
Mandatory scope	97.5	-	-	-	97.5
Voluntary scope	-	-	-	-	-
Hungary					
Mandatory scope	89.3	-	-	-	89.3
Voluntary scope	0.32	0.02	-	0.34	0.68
Ireland					
Mandatory scope	76.0	-	-	-	76.0
Voluntary scope	-	-	-	-	-
Italy					
Mandatory scope	473.7	-	-	<0.001*	473.7
Voluntary scope	-	-	-	-	-
Latvia					
Mandatory scope	4.4	-	-	-	4.4
Voluntary scope	0.06	<0.01	-	0.04	0.10
Lithuania					
Mandatory scope	16.5	-	-	-	16.5
Voluntary scope	0.05	0.01	-	3.4	3.4
Luxembourg					
Mandatory scope	1.2	-	-	-	1.2
Voluntary scope	0.03	<0.01	<0.01	<0.01	0.04
Malta					
Mandatory scope	1.3	-	-	<0.001*	1.3
Voluntary scope	<0.01	<0.001	-	<0.001	0.01
Netherlands					
Mandatory scope	120.3	-	-	-	120.3
Voluntary scope	0.45	0.04	-	-	0.49
Poland					
Mandatory scope	735.6	-	-	-	735.6
Voluntary scope	-	-	-	-	-

	Antibacterials	Antifungals	Antiinfectives	Antiprotozoals	Total reported
Portugal					
Mandatory scope	114.5	-	-	-	114.5
Voluntary scope	0.49	0.13	-	2.7	3.3
Romania					
Mandatory scope	201.0	-	-	0.10*	201.0
Voluntary scope	3.9	0.08	0.10	3.8	7.9
Slovakia					
Mandatory scope	11.6	-	-	-	11.6
Voluntary scope	0.30	0.04	-	0.10	0.4
Slovenia					
Mandatory scope	4.8	-	-	-	4.8
Voluntary scope	-	-	-	-	-
Spain					
Mandatory scope	1256.2	-	-	-	1256.2
Voluntary scope	1.2	0.19	-	19.4	20.8
Sweden					
Mandatory scope	9.3	-	-	-	9.3
Voluntary scope	-	-	-	-	-
EU					
Mandatory scope	**4402.7**	-	-	**0.10***	**4402.8**
Voluntary scope[2]	**8.9**	**1.0**	**0.10**	**42.5**	**52.5**
Iceland					
Mandatory scope	0.83	-	-	-	0.83
Voluntary scope	<0.01	0.03	-	<0.01	0.04
Norway					
Mandatory scope	5.1	-	-	-	5.1
Voluntary scope	-	-	-	-	-
EU, IS, NO					
Mandatory scope	**4408.6**	-	-	**0.10***	**4408.8**
Voluntary scope[2]	**8.9**	**1.0**	**0.10**	**42.5**	**52.5**

[1] The ASU Platform groups antimicrobial substances in categories, classes and subclasses taking into account the ATCvet codes in the Annex to Commission Delegated Regulation (EU) 2021/578 and the ATC(vet) classification system (see Annex 3).
[2] In 2024, 17 countries reported sales data from the voluntary scope.
[3] France reported voluntary scope sales only of products containing antiprotozoals (100% coverage).

[4] According to the German Veterinary Medicines Act, only a few ATCvet codes which are considered voluntary under EU law have to be reported. Only antifungals in combination preparations with antibiotics were recorded, whereas antifungal single-ingredient preparations were not recorded. Therefore, the reported sales of antifungal are incomplete.
* The mandatory scope only concerns substances with antibiotic activity in VMPs that are formulated for systemic, intramammary or intrauterine use. Some VMPs with ATCvet codes under the mandatory scope contain antibacterials in combination with other substances that do not have antibiotic activity. Sales of all substances in such products are assigned by the system to the mandatory scope by default and in 2024 include a negligible amount (0.002%) of sales of antiprotozoals. For 2024, no sales data were reported for antimycobacterials or antivirals for any of the countries.

It is important to note that while 10 of the countries reporting under the voluntary scope indicated a high level of data coverage, 7 countries reported incomplete or unknown coverage. Moreover, countries are not required to report data for all medicinal products with ATCvet codes classified as voluntary at EU level. Thus, reporting under the voluntary scope may vary from year to year or between countries, and even when coverage is marked as complete, it may only refer to a subset of antimicrobial classes. The utility of the voluntary data will remain limited for ESUAvet analysis at EU level, unless countries consistently report comprehensive data for these antimicrobial classes year after year.

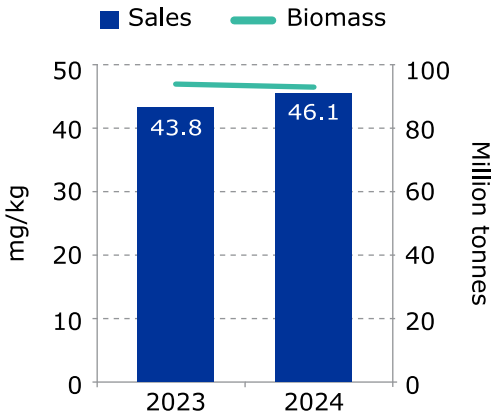
Due to the variability and limited comparability of voluntary scope data, this report mainly focuses on data from the mandatory scope.

1.2. Sales of antimicrobial VMPs (mandatory scope) for food-producing animals

All sales of antimicrobial VMPs under the mandatory scope for use in food-producing animals — including all horses[28] — are sales of VMPs with antibacterial substances which have antibiotic activity.

In 2024, sales intended for food-producing animals represented 98.5% of the total sales volume in tonnes (sales for other animals kept or bred are described in Section 1.3). At the EU level, aggregated sales in 2024 amounted to 46.1 mg/kg, reflecting a 5.1% increase compared to the previous year (Figure 4).

Figure 4. Antimicrobial VMP sales (mg/kg) and animal biomass for food-producing animals (million tonnes) in the EU by year [1]



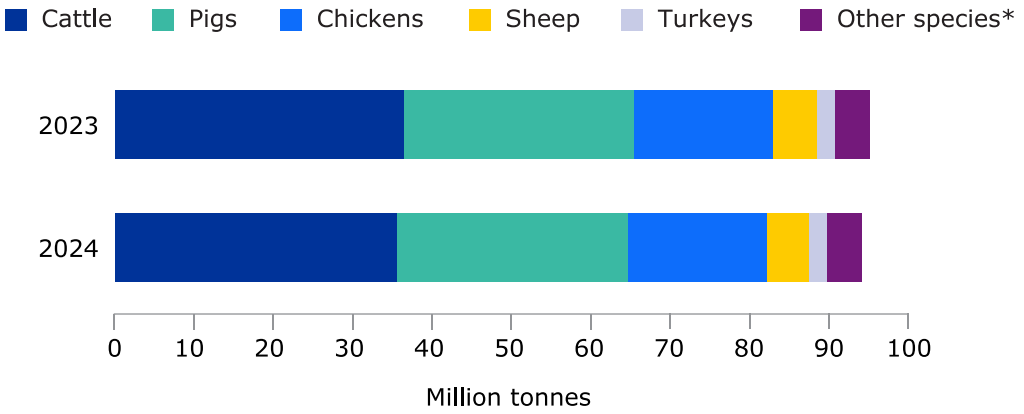
[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.

[28] Regulation (EC) No 854/2004 establishes that horses are considered to be food-producing animals. Typically, statistics on living horses cover both food-producing and non-food-producing horses. This implies that the sales of medicines authorised for horses not intended for slaughter is also included in the surveillance.

A change in the mg/kg indicator value can reflect changes in the sales volume (numerator), the animal biomass (denominator), or both. Compared to 2023, higher sales in 2024 — rather than biomass changes — were the primary reason for the increase in EU sales when measured in mg/kg. Total sales (in tonnes) increased by 4.1%, while the estimated biomass of food-producing animals decreased slightly (1.0%) over the same period.

Cattle, pigs and chickens accounted for 87.3% of the EU's estimated food-producing biomass in 2024 (94.1 million tonnes), and their relative proportions remained similar to those observed in the previous year (Figure 5). Detailed data on the food-producing animal biomass by species and country in 2024 are provided in Table A2.

Figure 5. Estimated animal biomass (in million tonnes) of food-producing animals by species in the EU by year

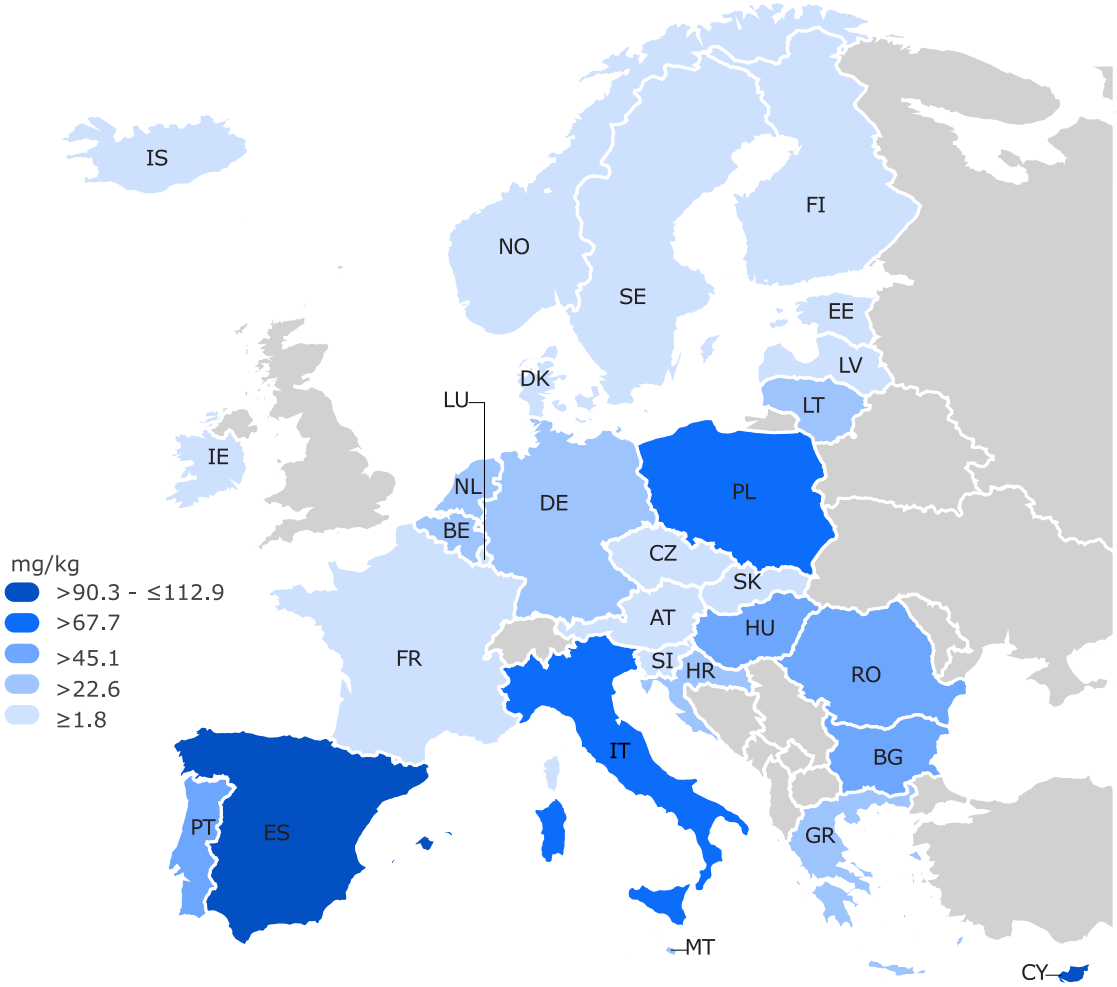


* Other species are finfish, goats, horses, other poultry, and rabbits.

Sales across reporting countries ranged from 1.8 mg/kg to 112.9 mg/kg (Figure 6, Table 2). Five countries — France, Germany, Italy, Poland and Spain — accounted for 75% of the total EU sales volume (in tonnes) in 2024 (Table 2, Figure A1). These countries represented 60% of the estimated EU food-producing biomass, highlighting their significant weight on EU-level trends.

Sales and biomass for food-producing animals, per country and per year, are summarised in Table A3.

Figure 6. Sales of antimicrobial VMPs for food-producing animals (mg/kg) in the EU, Iceland and Norway, in 2024[1,2]



[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Countries' codes according to ISO 3166 — Codes for the representation of names of countries and their subdivisions.

EU sales of antimicrobial VMPs for food-producing animals by product form and year are shown in Figure 7. In 2024, oral solutions were the most sold product form, accounting for 65.3% of the total sales, followed by premixes (13.2%), injectables (12.7%), and oral powders[29] (7.4%). The remaining 1.3% comprised sales of oral pastes, tablets, intramammary and intrauterine products.

Taken together, sales of oral powders, oral solutions and premixes provide a reasonable estimate of products intended for group treatment, including animal groups kept per pen or at farm level. These forms accounted for 86.0% of total sales in the EU in 2024, a proportion similar to that observed in 2023. Noticeable changes were observed among these product forms, particularly for premix sales, which declined by 17.4% (from 7.4 mg/kg to 6.1 mg/kg), and for oral solutions, which increased by 12.6% (from 26.7 mg/kg to 30.1 mg/kg). Higher sales of oral solutions contributed the most to the overall increase in EU sales in 2024, given that changes in sales of other product forms — which account for much smaller proportions — were relatively minor.

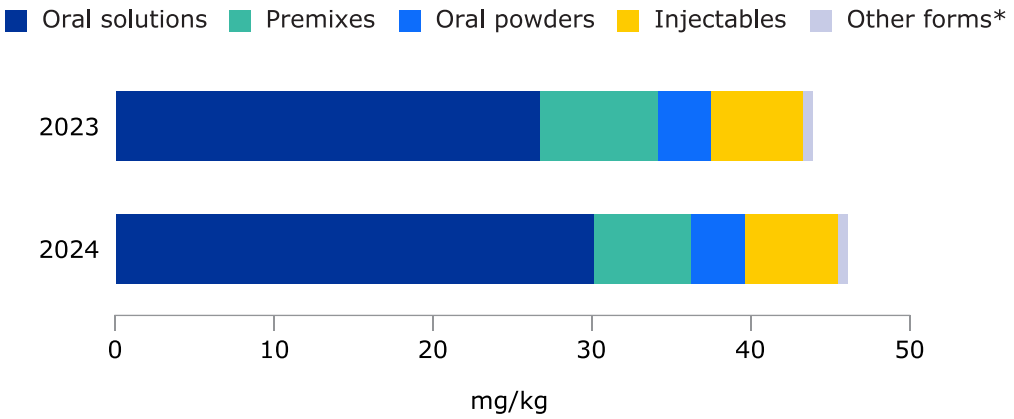
[29] Oral powders that can be administered via feed or both feed and drinking water are reported as the product form 'oral powder'. The product form 'oral solution' refers to oral solutions and oral powders to be administered with drinking water, milk and/or milk replacer.

Table 2. Sales for food-producing animals in tonnes of active substance of antimicrobial VMPs, animal biomass in million tonnes and sales in mg/kg per country in 2024[1]

Country	Sales (tonnes)	Animal biomass (million tonnes)	Sales (mg/kg)
Austria	35.5	1.8	20.1
Belgium	114.2	3.2	35.1
Bulgaria	38.6	0.74	51.9
Croatia	16.8	0.47	35.4
Cyprus	22.7	0.20	112.9
Czechia	29.7	1.6	19.1
Denmark	78.4	3.5	22.2
Estonia	4.9	0.26	18.8
Finland	7.3	0.85	8.6
France	255.9	15.7	16.3
Germany	553.6	13.9	39.8
Greece	96.5	2.4	41.0
Hungary	88.6	1.8	49.6
Ireland	74.7	4.3	17.2
Italy	466.7	5.8	79.9
Latvia	4.2	0.33	12.8
Lithuania	16.3	0.61	26.6
Luxembourg	1.1	0.13	8.2
Malta	1.3	0.03	40.4
Netherlands	117.6	4.8	24.5
Poland	732.1	9.5	76.9
Portugal	112.3	2.3	49.6
Romania	195.5	4.2	46.5
Slovakia	11.2	0.50	22.3
Slovenia	4.6	0.39	11.7
Spain	1,249.5	13.4	93.1
Sweden	8.7	1.4	6.1
EU	**4,338.0**	**94.1**	**46.1**
Iceland	0.78	0.18	4.4
Norway	4.7	2.6	1.8
EU, IS, NO	**4,343.5**	**97.0**	**44.8**

[1] Sales of antimicrobial VMPs subject to mandatory reporting, which only concerns substances with antibiotic activity. Some of the sales allocated to food-producing animals could be for non-food-producing animals. The impact on the sales for food-producing animals is presumed to be minor.

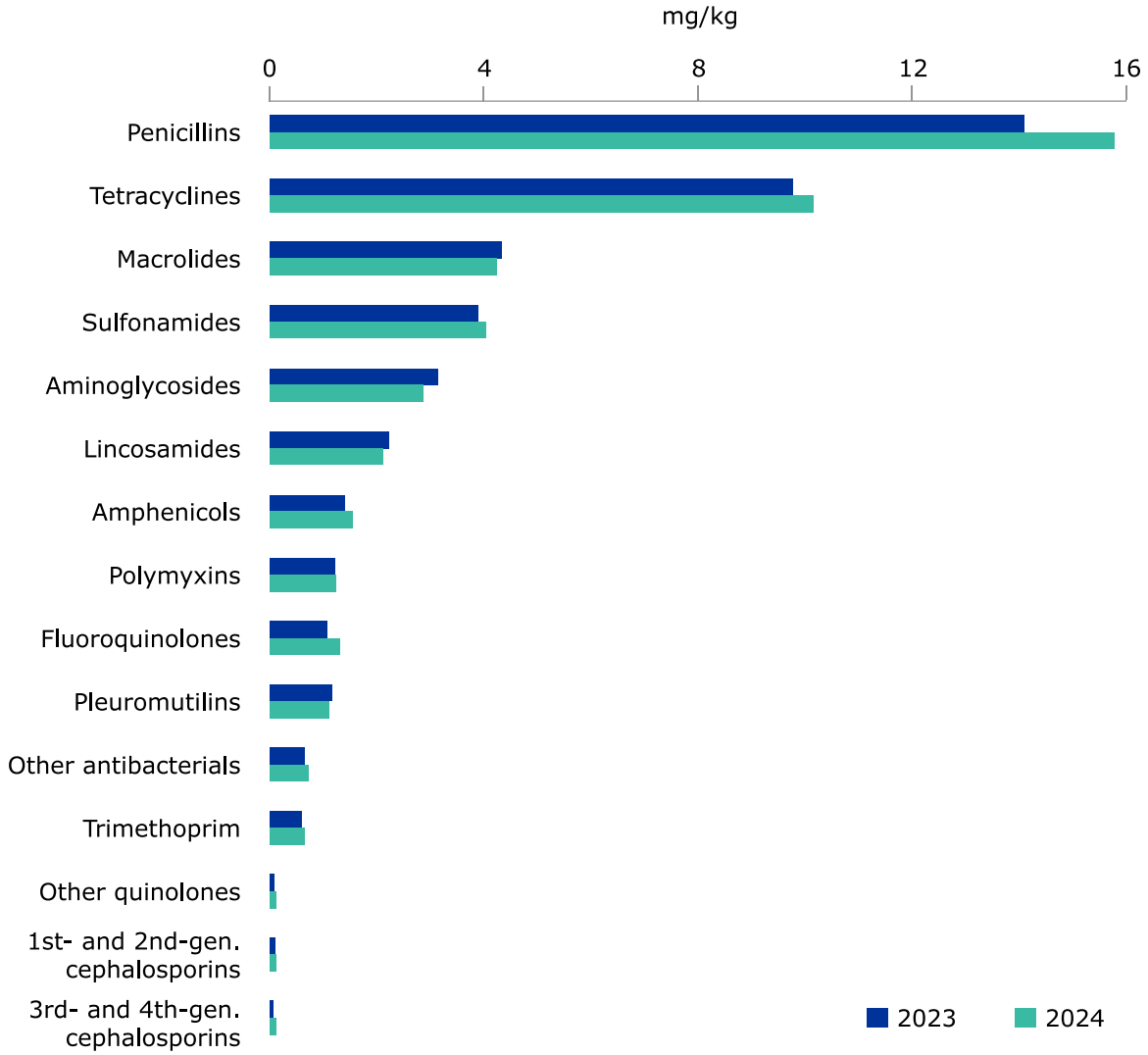
Figure 7. Sales of antimicrobial VMPs (in mg/kg) for food-producing animals by product form in the EU by year[1,2]



[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Sales of antimicrobial VMPs for food-producing animals by product form by country are shown in Figure A2.
* 'Other forms' includes oral pastes, tablets, intramammary and intrauterine products.

As shown in Figure 8, the most sold antimicrobial classes in the EU in 2024 were penicillins (34.2%), tetracyclines (22.0%) and macrolides (9.2%), accounting for 65.5% of total sales (in mg/kg) of antimicrobial VMPs for food-producing animals. While some fluctuations were observed, the overall distribution and ranking of antimicrobial classes remained largely consistent with 2023. Notably, sales of penicillins increased the most (11.9%), from 14.1 mg/kg to 15.8 mg/kg, primarily due to higher amoxicillin sales.

Figure 8. Sales of antimicrobial VMPs (mg/kg) for food-producing animals by antimicrobial class in the EU by year[1,2]

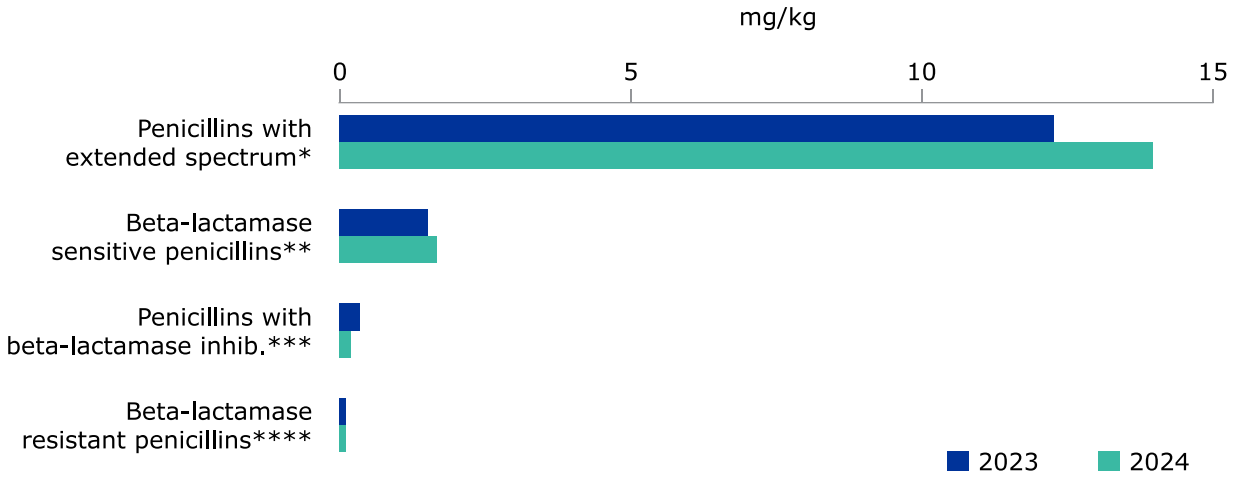


[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Sales of antimicrobial VMPs for food-producing animals by antimicrobial class by country are shown in Figure A3.

At EU level in 2024, 87.5% of the total sales of penicillins were penicillins with extended spectrum (98.3% amoxicillin, 1.7% ampicillin) (Figure 9). In contrast, beta-lactamase-sensitive penicillins accounted for the majority of the total sales of penicillins in Denmark, Finland, Luxembourg and Sweden, ranging from 59.0% to 95.0% of the total sales of penicillins in these countries[30] (Figure A4). Fixed combination of amoxicillin and beta-lactamase inhibitors represented just 1.2% of the EU's total sales of penicillins, while beta-lactamase-resistant penicillins accounted for an even a smaller fraction, at 0.70%. The relative sales of penicillins by subclasses are relevant when considering the categorisation of antimicrobials for use in animals based on their importance for human and animal health, which is described below.

[30] A similar pattern was observed for Iceland and Norway.

Figure 9. Sales of penicillins by subclass (in mg/kg) for food-producing animals in the EU by year[1]

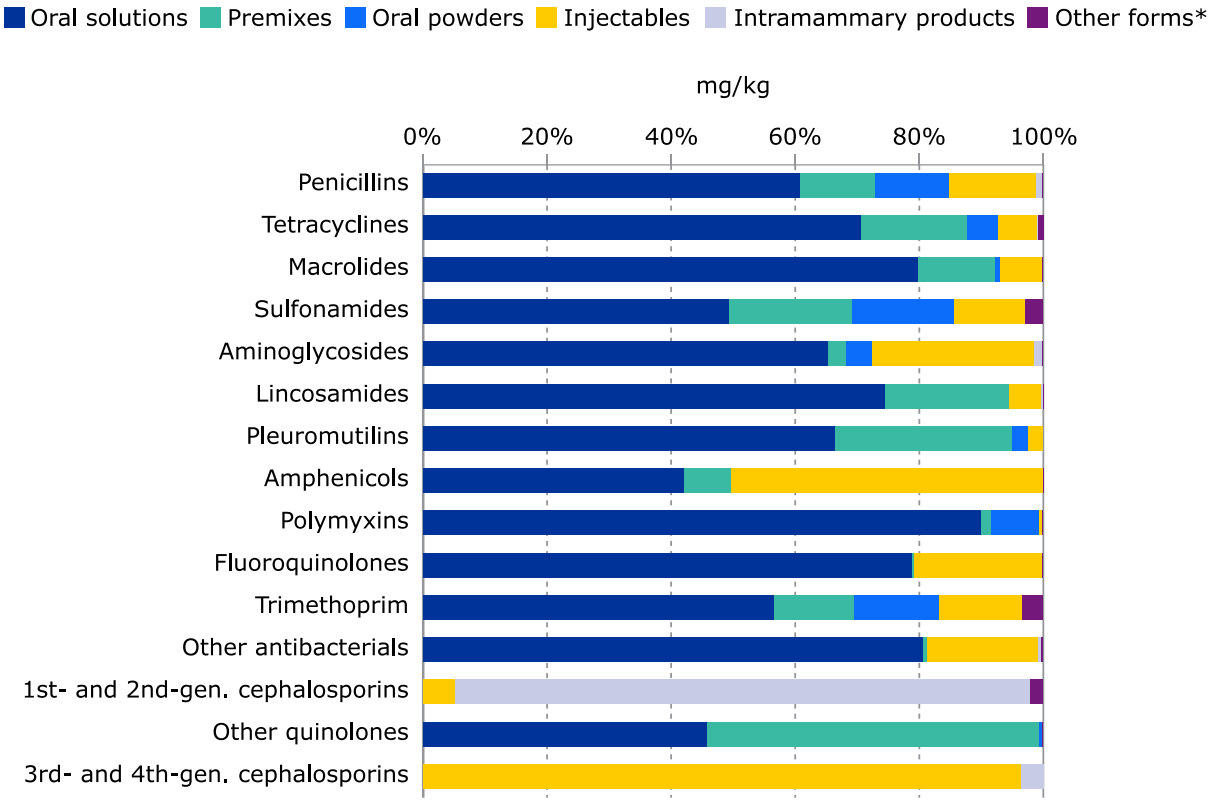


[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
* Penicillins with extended spectrum included only aminopenicillins (amoxicillin and ampicillin), with amoxicillin accounting for more than 87% of sales in this subclass in both years.
** Beta-lactamase-sensitive penicillins included only benzylpenicillin and phenoxymethylpenicillin, with benzylpenicillin representing more than 80% of this subclass sales in both years.
*** Only combinations of amoxicillin with enzyme inhibitor (clavulanic acid) in both years.
**** Beta-lactamase-resistant penicillins included cloxacillin, dicloxacillin and nafcillin, with cloxacillin accounting for more than 87% of sales in this subclass in both years.

Compared to the previous year, overall EU sales of penicillins increased, primarily due to higher sales of penicillins with extended spectrum — from 12.1 mg/kg in 2023 to 12.8 mg/kg in 2024 — with sales of amoxicillin as oral solutions accounting for most of this increase (Figure 9).

Across most antimicrobial classes, products intended for oral administration showed the highest proportion of EU sales in 2024, with oral solution products being the most common form. While Figure 7 highlighted the overall predominance of oral products — representing 86.0% of EU sales — Figure 10 adds further insight: this pattern is not driven by just one or two high-volume classes, but rather reflects a widespread trend across multiple antimicrobial classes. Nonetheless, notable exceptions exist: amphenicols and 3rd- and 4th-generation cephalosporins were primarily sold as injectable products, while 1st- and 2nd-generation cephalosporins were predominantly sold as intramammary formulations.

Figure 10. Proportion of sales for food-producing animals by antimicrobial class and product form in the EU in 2024[1]



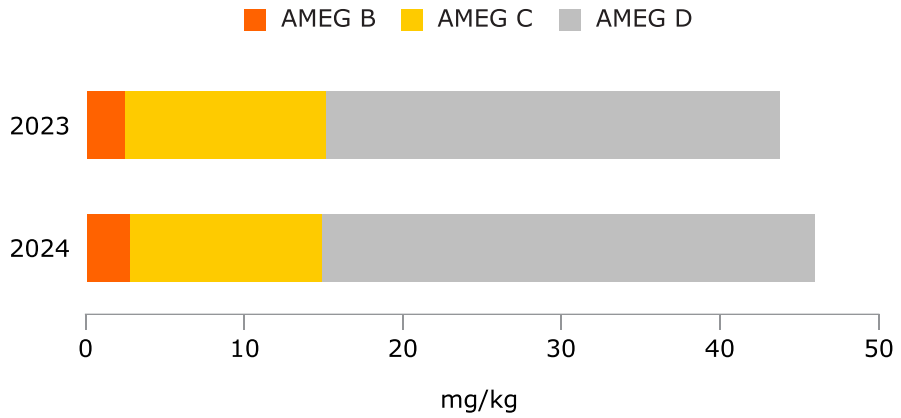
[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
* Other forms include intrauterine products, oral pastes and tablets.

Sales for food-producing animals are presented per AMEG category[31]:

- **AMEG category D** (Prudence) includes those antimicrobials that are recommended as first line treatments whenever possible.
- **AMEG category C** (Caution) includes antimicrobials that should be considered only when there are no antimicrobials in category D that could be clinically effective. For antimicrobials in this category there are alternatives in human medicine but for some veterinary indications there are no alternatives belonging to category D.
- **AMEG category B** (Restrict) includes those antimicrobials for which the potential risk to public health is estimated to be higher than from other classes of antimicrobials. Fluoroquinolones, other quinolones, 3rd- and 4th-generation cephalosporins and polymyxins are included in this category. These antimicrobials are classified as highest priority critically important antimicrobials for human medicine by WHO[32].
- **AMEG category A** (Avoid) of the AMEG categorisation includes antimicrobials authorised in human medicine but not in veterinary medicine in the EU. These antimicrobials may be used exceptionally in non-food-producing animals. Therefore, there were no VMP sales for food-producing animals with antimicrobials included in category A.

[31] AMEG Infographic - Categorisation of antibiotics for use in animals for prudent and responsible use.
[32] WHO List of Medically Important Antimicrobials: a risk management tool for mitigating antimicrobial resistance due to non-human use.

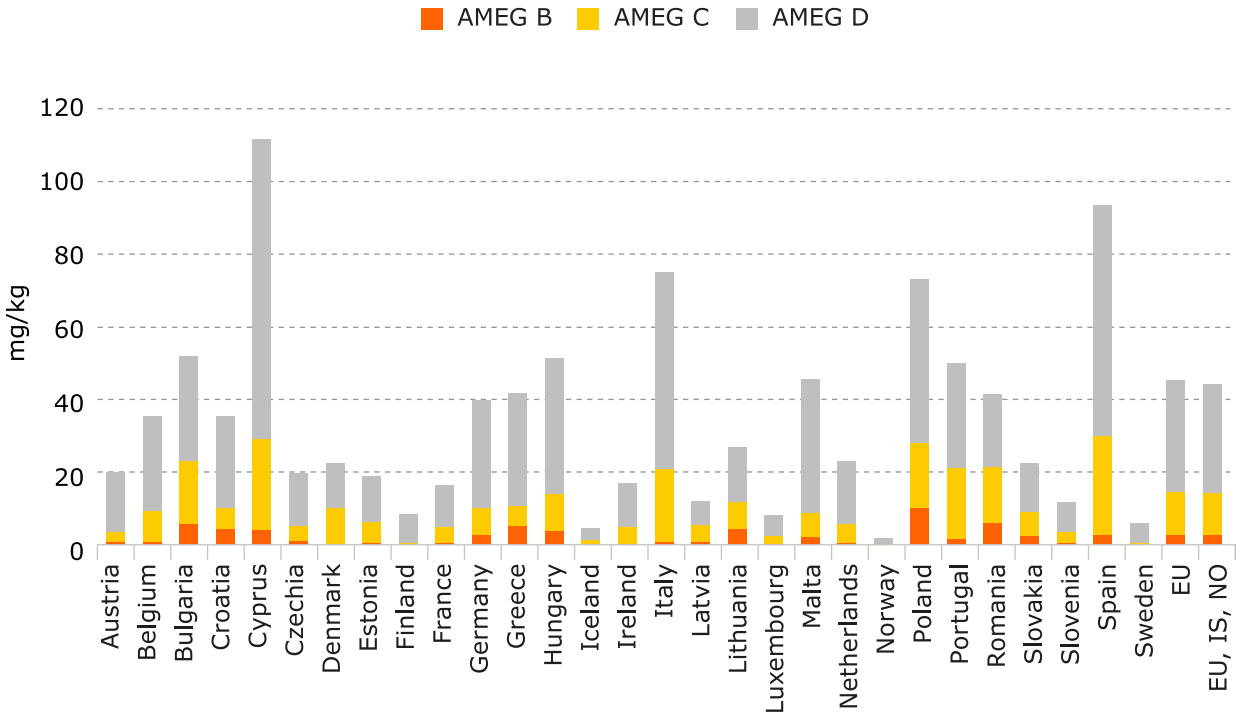
Figure 11. Sales of antimicrobial VMPs (in mg/kg) for food-producing animals by AMEG category in the EU by year[1]



[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.

Despite the general increase in EU sales for food-producing animals in 2024, the relative sales proportions of the three AMEG categories remained broadly consistent with those observed in 2023 (Figure 11). In 2024, antimicrobials in **AMEG category D** (prudence) accounted for 67.6% (31.1 mg/kg) of total EU sales for food-producing animals. At country level, the share of AMEG D antimicrobials ranged from 47.8% to 94.4% of total sales. **AMEG category C** (caution) antimicrobials represented 26.4% (12.2 mg/kg) of total EU sales, with national proportions ranging from 4.9% to 44.7%. Sales of **AMEG category B** (restrict) accounted for 6.0% (2.8 mg/kg) of total EU sales. At country level, AMEG B antimicrobials accounted for 0.03% to 15.9% of total sales, with 7 reporting countries recording proportions above 10%. See Figure 11, Figure 12 and Figure 13.

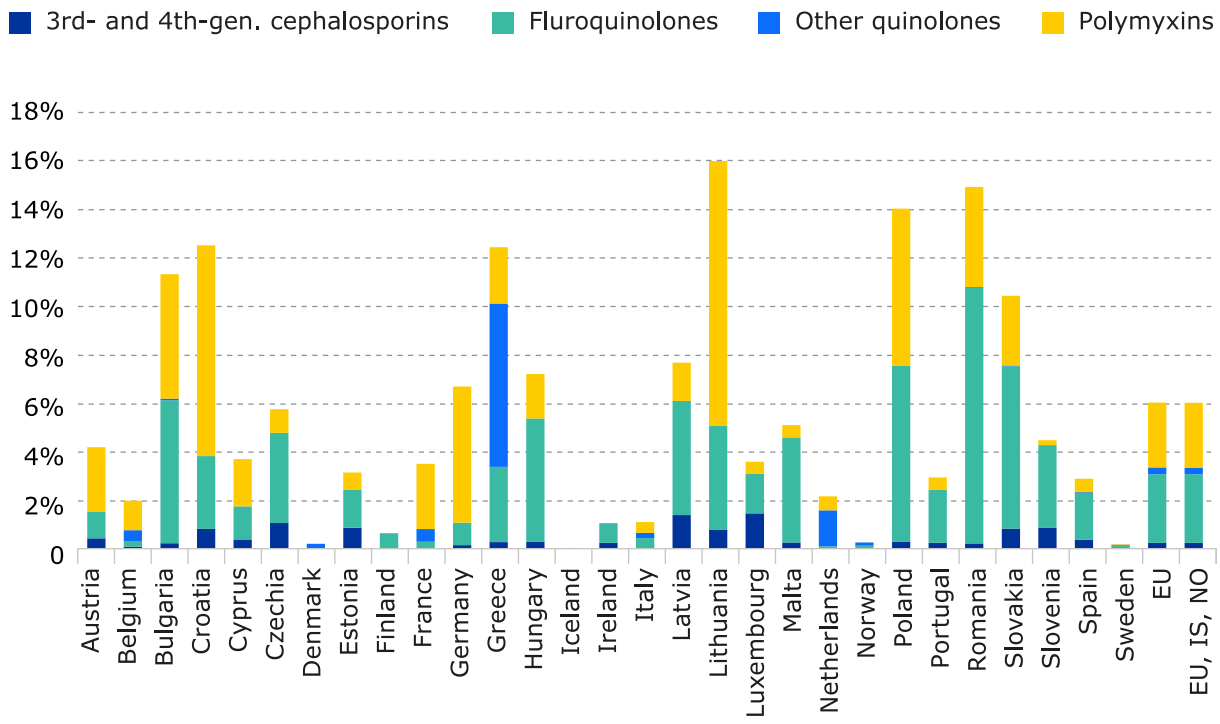
Figure 12. Sales of antimicrobial VMPs (in mg/kg) for food-producing animals by AMEG category per country in 2024[1]



[1] Sales of antimicrobial VMPs subject to mandatory reporting, which only concerns substances with antibiotic activity.

In 2024, the proportion of sales (in mg/kg) corresponding to each of **AMEG category B** antimicrobials varied substantially between countries, ranging from 0% to 1.5% for 3rd- and 4th-generation cephalosporins, <0.01% to 10.5% for fluoroquinolones, 0% to 6.7% for other quinolones and 0% to 10.9% for polymyxins (Figure 13).

Figure 13. Proportion of total sales (in mg/kg) of 3rd- and 4th-generation cephalosporins, fluoroquinolones, other quinolones and polymyxins of total antimicrobial VMP sales for food-producing animals, by country in 2024[1-5]



[1] Sales of antimicrobial VMPs subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] 3rd- and 4th-generation cephalosporins, fluoroquinolones, other quinolones and polymyxins belong to AMEG category B.
[3] No sales of 3rd- and 4th-generation cephalosporins reported for Denmark, Finland, Iceland and Norway.
[4] No sales of other quinolones reported for Austria, Croatia, Cyprus, Czechia, Estonia, Finland, Germany, Hungary, Iceland, Ireland, Latvia, Lithuania, Luxembourg, Malta, Poland Portugal, Slovenia, and Sweden.
[5] No sales of polymyxins reported for Denmark, Finland, Iceland, Ireland, and Norway.

EU sales increased for 3rd- and 4th-generation cephalosporins, fluoroquinolones and other quinolones, and remained unchanged for polymyxins (Figure 8). Country-level figures are provided in Table A3:

- Sales of 3rd- and 4th-generation cephalosporins ranged from <0.001 mg/kg to 0.43 mg/kg between reporting countries, with 4 countries not reporting any sales. At EU level, sales of 3rd- and 4th-generation cephalosporins increased from 0.07 mg/kg in 2023 to 0.11 mg/kg in 2024 and accounted for 0.24% of the total EU sales.
- Sales of fluoroquinolones ranged from <0.01 mg/kg to 5.6 mg/kg between reporting countries. At EU level, sales of fluoroquinolones increased from 1.1 mg/kg in 2023 to 1.3 mg/kg in 2024 and accounted for 2.8% of the total EU sales.
- Sales of other quinolones ranged from <0.01 mg/kg to 2.8 mg/kg between reporting countries, with 17 countries not reporting any sales. At EU level, sales of other quinolones increased from 0.09 mg/kg in 2023 to 0.13 mg/kg in 2024 and accounted for 0.28% of the total EU sales.

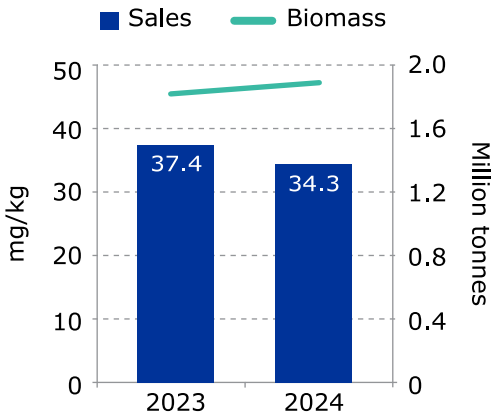
- Sales of polymyxins ranged from <0.01 mg/kg to 5.0 mg/kg between reporting countries, with 5 countries not reporting any sales. At EU level, sales of polymyxins remained unchanged in 2024 at 1.2 mg/kg and accounted for 2.7% of the total EU sales.

1.3. Sales of antimicrobial VMPs (mandatory scope) for other animals kept or bred

All sales of antimicrobial VMPs under the mandatory scope for other animals kept or bred — dogs, cats, fur animals (minks and foxes) and other non-food-producing animals — are sales of VMPs with antibacterial substances which have antibiotic activity.

In 2024, sales for this animal group accounted for 1.5% of the total sales volume in tonnes. At the EU level, aggregated sales amounted to 34.3 mg/kg, reflecting an 8.2% decrease compared to 2023. This decline is accounted for by a 4.7% reduction in sales volume (in tonnes), combined with a 3.9% increase in the estimated biomass for this animal group (Figure 14)[33].

Figure 14. Antimicrobial VMP sales (mg/kg) and animal biomass for other animals kept or bred (million tonnes) in the EU by year[1]

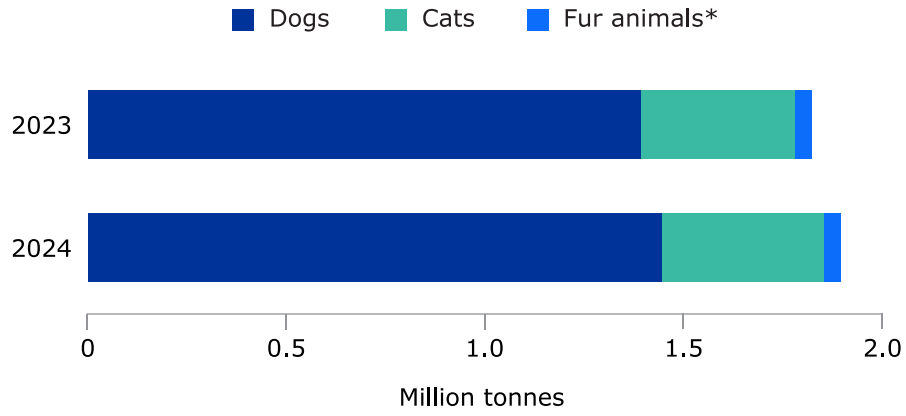


[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.

Dogs and cats accounted for 97.9% of the EU's estimated biomass for other animal kept or bred in 2024 (1.9 million tonnes), a similar proportion to that observed in the previous year (Figure 15). Fur animals accounted for the remaining 2.1% of this biomass (1.9% for minks and 0.2% for foxes). However, their share varied considerably across the 10 EU countries that reported having fur animals in 2024, ranging from 0.5% to 27.8% of the national biomass for animals kept or bred (Table 3 and Table A2).

[33] The animal biomass denominator used to normalise the sales of VMPs for use in other animals kept or bred does not include all the animal species for which these VMPs may be authorised (e.g. exotic birds, racing pigeons and companion animals other than dogs and cats are not included).

Figure 15. Estimated animal biomass (in million tonnes) of other animal species kept or bred in the EU by year



* In 2024, fur animals (i.e. minks and/or foxes) were kept or bred in 10 EU countries (Bulgaria, Denmark, Finland, Greece, Latvia, Lithuania, Poland, Romania, Spain and Sweden). Minks and foxes accounted, respectively, for 1.9% and 0.2% of the EU biomass of other animals kept or bred.

In 2024, sales of antimicrobial VMPs for other animals kept or bred, normalised by the corresponding estimated biomass, varied across reporting countries — ranging from 10.6 mg/kg to 107.3 mg/kg (Table 3). Six countries — France, Germany, Italy, Spain, Poland and Romania — accounted for 73% of the total EU sales volume (in tonnes) for this animal group (Figure A5). These countries represented 72% of the estimated EU biomass for other animals kept or bred, highlighting their significant weight on EU-level trends.

Sales and biomass for other animals kept or bred, per country and per year, are summarised in Table A4.

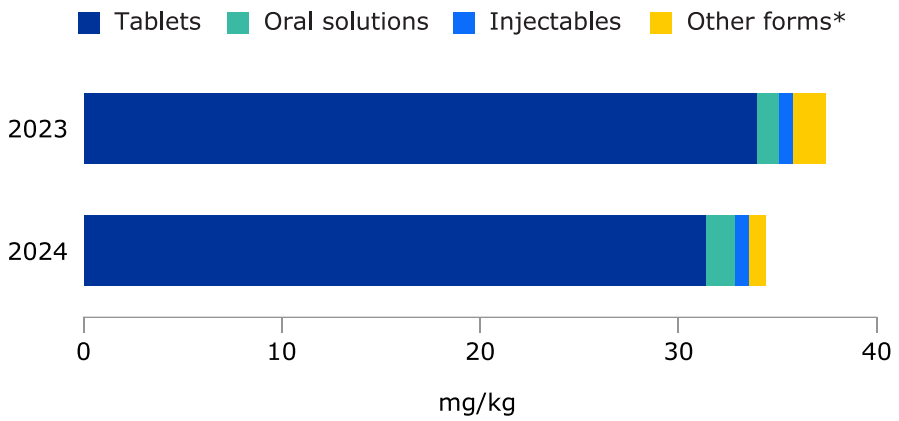
EU sales of antimicrobial VMPs for other animals kept or bred by product form and year are shown in Figure 16. In 2024, tablets were the most sold product form, accounting for 91.5% of the total sales, followed by oral solutions (4.0%) and injectables (2.0%). The remaining 2.5% comprised sales of oral pastes, oral powders and premixes. These proportions are similar to those observed in 2023 and indicate that the overall decrease in EU sales for other animals kept or bred in 2024 was primarily caused by lower sales of tablets (from 33.9 mg/kg to 31.4 mg/kg), as changes in sales of other product forms — which account for much smaller proportion of the sales — were relatively minor.

Table 3. Sales for other animals kept or bred in tonnes of active substance of antimicrobial VMPs, animal biomass in thousand tonnes and sales in mg/kg per country in 2024[1,2]

Country	Sales (tonnes)	Animal biomass (thousand tonnes)	% fur animals biomass	Sales (mg/kg)
Austria	0.74	26.8	0%	27.7
Belgium	2.7	56.4	0%	47.9
Bulgaria	0.46	18.9	1.6%	24.2
Croatia	0.44	16.3	0%	27.2
Cyprus	0.19	3.9	0%	49.1
Czechia	1.6	51.6	0%	30.5
Denmark	0.62	15.8	0.6%	39.4
Estonia	0.21	6.5	0%	32.0
Finland	0.88	23.9	12.5%	36.8
France	16.2	281.0	0%	57.5
Germany	8.1	288.5	0%	28.1
Greece	1.1	22.2	27.8%	48.2
Hungary	0.71	67.2	0%	10.6
Ireland	1.3	12.2	0%	107.3
Italy	7.0	226.5	0%	30.7
Latvia	0.19	7.8	4.6%	24.3
Lithuania	0.28	8.1	12.8%	34.0
Luxembourg	0.12	1.4	0%	82.2
Malta	0.09	2.2	0%	41.2
Netherlands	2.7	50.5	0%	54.2
Poland	3.6	230.7	10.5%	15.5
Portugal	2.1	70.5	0%	30.5
Romania	5.5	108.9	1.6%	50.7
Slovakia	0.41	29.1	0%	14.1
Slovenia	0.23	8.3	0%	28.1
Spain	6.7	222.0	1.3%	30.2
Sweden	0.60	30.0	0.5%	20.1
EU	**64.7**	**1887.4**	**2.1%**	**34.3**
Iceland	0.05	0.72	2.6%	69.9
Norway	0.36	13.6	0%	26.2
EU, IS, NO	**65.2**	**1901.7**	**2.1%**	**34.3**

[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] The sales numerator for other animals kept or bred most likely reflects sales of antimicrobial VMPs for companion animals. Many VMPs authorised for use in fur animals are also authorised for food-producing animals, and their sales are therefore allocated to the latter group. Since the biomass includes fur animals but sales of VMPs authorised for these species are not fully captured in the numerator, as a result, sales for other animals kept or bred expressed in mg/kg may be underestimated, particularly for countries that keep or breed fur animals.

Figure 16. Sales of antimicrobial VMPs (in mg/kg) for other animals kept or bred by product form in the EU by year[1,2]

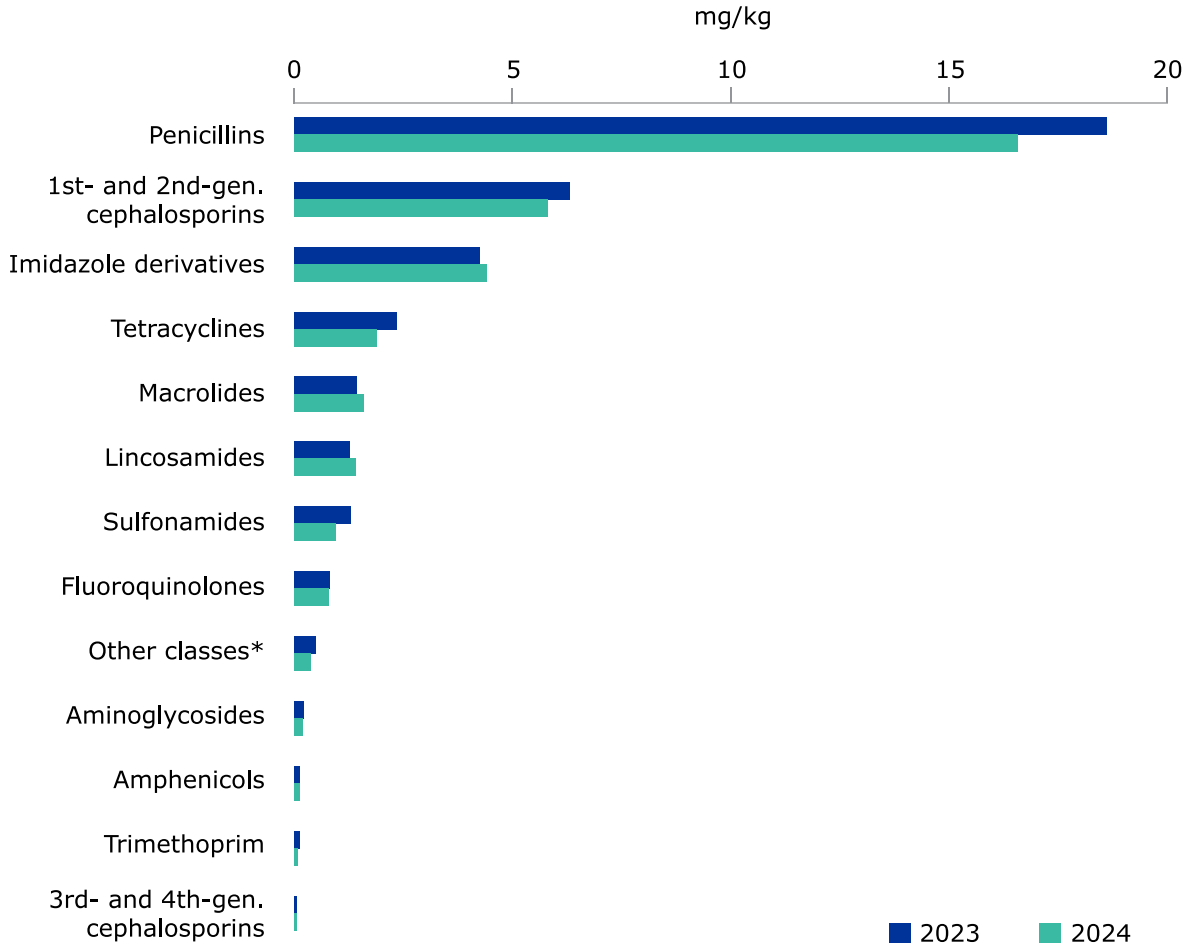


[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Sales of antimicrobial VMPs for other animals kept or bred by product form by country are shown in Figure A6.
* 'Other forms', which represented 2.5% of sales of antimicrobial VMPs for other animals kept or bred, include oral pastes, oral powders and premixes.

As shown in Figure 17, the most sold antimicrobial classes in the EU in 2024 were penicillins (48.4%), 1st- and 2nd-generation cephalosporins (16.9%) and imidazole derivatives[34] (12.9%), accounting for 78.2% of total sales of antimicrobial VMPs for other animals kept or bred. 'Other classes' (i.e. nitrofuran derivatives, other antibacterials, pleuromutilins, other quinolones and polymyxins) accounted for 1.0% of the total sales in the EU. While some fluctuations were observed, the overall distribution and ranking of antimicrobial classes remained largely consistent with 2023. The most notable change was in sales of penicillins, which decreased from 18.6 mg/kg in 2023 to 16.6 mg/kg in 2024.

[34] In both 2023 and 2024, sales of imidazole derivatives under the mandatory scope for other animals kept or bred refer exclusively to metronidazole.

Figure 17. Sales of antimicrobials VMPs (in mg/kg) for other animals kept or bred by antimicrobial class in the EU by year[1,2]

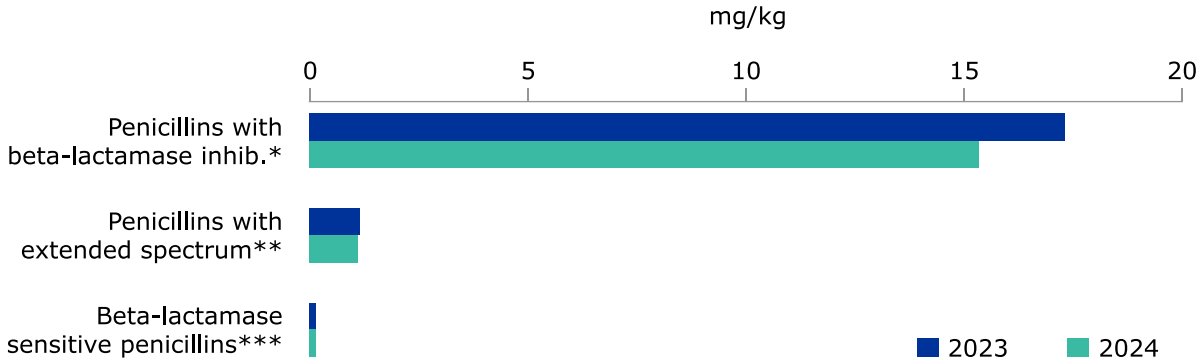


[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Sales of antimicrobial VMPs for other animals kept or bred by antimicrobial class by country are shown in Figure A7.
* Other classes include small quantities of nitrofuran derivatives, other antibacterials, pleuromutilins, other quinolones and polymyxins.

At EU level in 2024, 92.4% of VMP sales containing penicillins for other animals kept or bred were of penicillins in combination with beta-lactamase inhibitors, representing the most sold penicillin subclass in all but two countries (Figure A8). The remaining sales of penicillins were of penicillins with extended spectrum (6.7%) and of beta-lactamase-sensitive penicillins (0.85%).

Compared with the previous year, overall EU sales of VMPs containing penicillins decreased mainly due to lower sales of penicillins in combination with beta-lactamase inhibitors, from 17.3 mg/kg in 2023 to 15.4 mg/kg in 2024 (Figure 18).

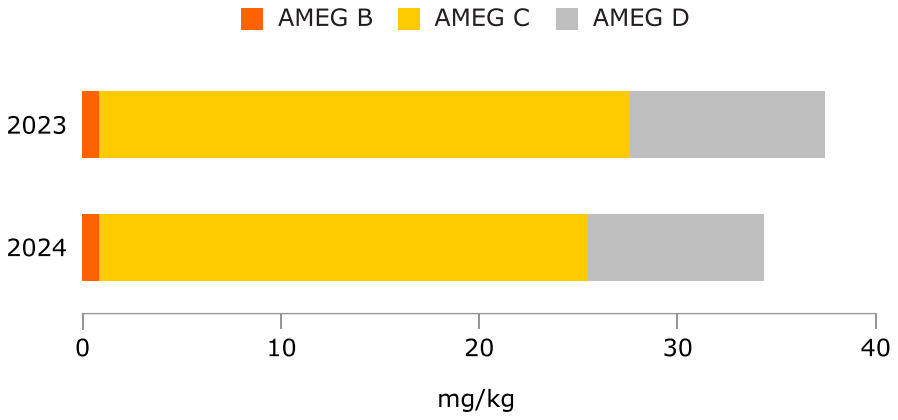
Figure 18. Sales of penicillins by subclass (in mg/kg) for other animals kept or bred in the EU by year[1]



[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
* Only combinations of amoxicillin with enzyme inhibitor (clavulanic acid) in both years.
** Penicillins with extended spectrum included only aminopenicillins (amoxicillin, ampicillin), with amoxicillin accounting for more than 97% of sales in this subclass in both years.
*** Beta-lactamase-sensitive penicillins included only benzylpenicillin in both years.

As described in Section 1.2 for food-producing animals, sales of antimicrobial VMPs for other animals kept or bred are also presented per AMEG category[35]. Despite the general decrease in EU sales for other animals kept or bred in 2024, the relative sales proportions of the three AMEG categories remained consistent with those observed in 2023 (Figure 19).

Figure 19. Sales of antimicrobial VMPs (in mg/kg) for other animals kept or bred by AMEG category in the EU by year [1]



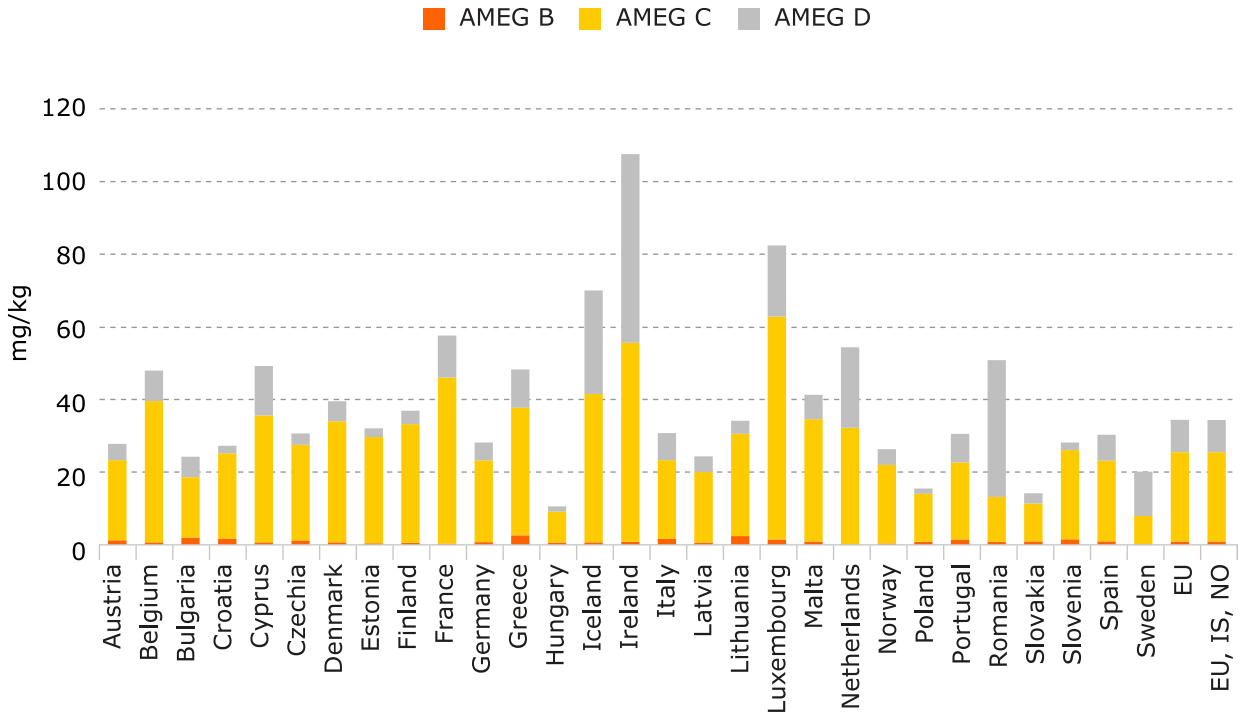
[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.

In 2024, antimicrobials in **AMEG category C** (caution) accounted for the majority of EU sales for other animals kept or bred, 71.5% of total sales (24.6 mg/kg). This high proportion is largely driven by sales of penicillins in combination with beta-lactamase inhibitors, specifically amoxicillin with clavulanic acid. At country level, sales of AMEG C antimicrobials represented 23.9% to 91.2% of total sales.

[35] AMEG category A (avoid) includes those antimicrobials that are not authorised as veterinary medicines in the EU. Therefore, there were no VMP sales for other animals kept or bred with antimicrobials included in category A.

Sales of **AMEG category D** (prudence) antimicrobials accounted for 25.8% (8.9 mg/kg) of total EU sales for other animals kept or bred, with proportions by country ranging from 7.5% to 72.7%. Sales of **AMEG category B** (restrict) represented 2.5% (0.87 mg/kg) of total EU sales. At country level, sales of AMEG B antimicrobials accounted for 0.1% to 8.0% of total sales (Figure 19, Figure 20, Table A4).

Figure 20. Sales of antimicrobial VMPs (in mg/kg) for other animals kept or bred by AMEG category per country in 2024[1]



[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.

2. Use of antimicrobial medicinal products in animals

This section presents data on the use of antimicrobials in cattle, pigs, chickens and turkeys, as reported by the 29 reporting countries (i.e. 27 EU countries, Iceland and Norway) for 2023 and 2024.

Disclaimers for use data:

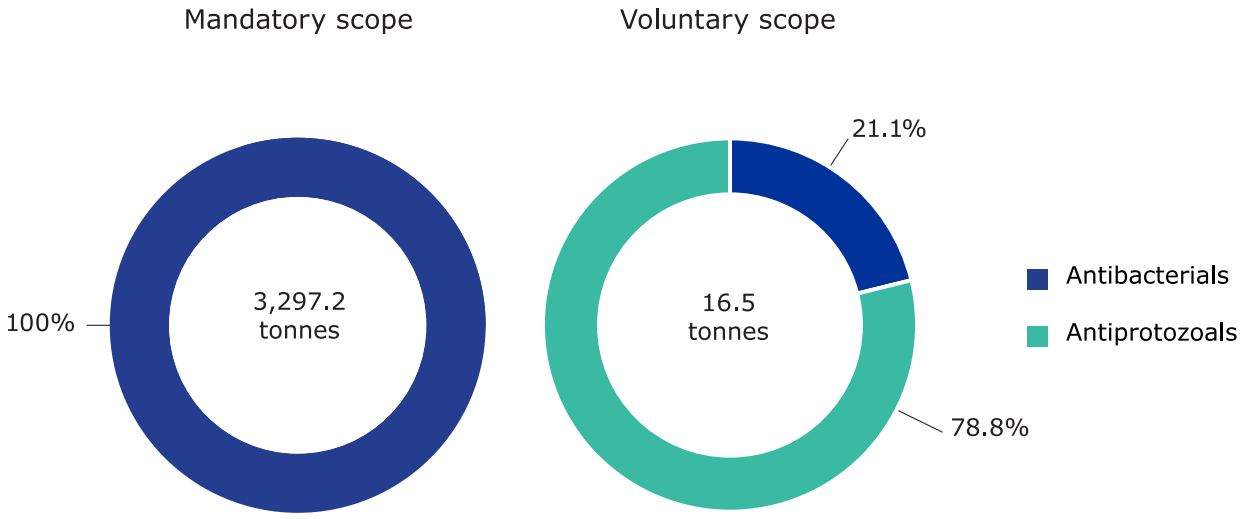
- Since 2024, EU countries, Iceland and Norway are required to report antimicrobial use data by animal species and categories to the Agency on an annual basis. Many countries had no prior experience in collecting such data prior to the implementation of Regulation (EU) 2019/6. It is generally accepted that establishing a reliable baseline for sales data requires at least three to four years of consistent collection. **Use data should be interpreted with caution during initial years of collection, as it may take at least a similar period to develop a solid and representative baseline**. Consequently, it is possible that inconsistencies in published data will be identified over time and followed up in subsequent reporting cycles.
- Reported coverage and accuracy varied significantly across countries. These figures should be interpreted with caution, as calculation methods may differ between countries.
- Since it is unknown whether the use data reported by each country are entirely representative of national-level use, the data are not aggregated at EU level. Instead, this section focuses on describing the data submitted to the Agency. **Only data from countries reporting at least 90% coverage were used for further analysis.** Data from countries below this threshold are included for tracking purposes only, to assess improvements in data quality and completeness.
- The data presented in this report should not be used as a sole basis for setting management priorities as differences between countries in animal demographics, VMP availability, disease incidence and outbreaks, production systems, and national policies, among others, should also be considered. Moreover, as use data collected at national level can be sourced from different providers, the **data presented in this report should not be used for direct comparison between countries or species**.
- Country-level data may differ from those presented in national reports due various factors, including differences in the inclusion criteria for antimicrobials and indicators used. Therefore, the **data presented in the ESUAvet annual surveillance report should not be directly compared to data presented in national reports**.

2.1. Overview of reported use of antimicrobial medicinal products in animals

As for 2023, use data for 2024 were collected for four food-producing animal species: cattle, pigs, chickens, and turkeys. All of the 29 reporting countries submitted data under the mandatory reporting scope.

In 2024, a total of 3,297.2 tonnes of antimicrobials were reported as used across the EU under the mandatory scope (Figure 21), which includes antibacterials with antibiotic activity in products formulated for systemic, intramammary and intrauterine use. When including Iceland and Norway, the total use was slightly higher (3,299.1 tonnes). Compared to 2023, antimicrobial use under the mandatory scope in the EU for these four species increased by 30.8 tonnes, representing a 0.94% increase. The coverage of reported use data under the mandatory scope varied significantly across species and countries and is discussed in detail at the species level (Tables 5 to 8).

Figure 21. Proportion of reported use (in tonnes) of antimicrobial medicinal products by antimicrobial class in the EU in 2024[1-4]



[1] The ASU Platform groups antimicrobial substances in categories, classes and subclasses taking into account the ATCvet codes in the Annex to Commission Delegated Regulation (EU) 2021/578 and the ATC(vet) classification system (see Annex 3).
[2] Use data subject to mandatory and voluntary reporting. In 2024, all 29 countries reported use data under the mandatory scope and 14 countries reported use data under the voluntary scope (Bulgaria, Croatia, Estonia, France, Germany, Hungary, Iceland, Lithuania, Malta, Netherlands, Portugal, Romania, Slovakia and Spain).
[3] The mandatory scope only concerns substances with antibiotic activity in products that are formulated for systemic, intramammary and intrauterine use. Under the voluntary scope, use of antiinfectives and antifungals represented less than 0.11% and 0.02%, respectively. No use data were reported for antimycobacterials or antivirals in 2024.
[4] Coverage of use data subject to mandatory reporting is described per species in Tables 5 to 8. Among the 14 countries that submitted voluntary use data, coverage was unknown or incomplete in all but three — Croatia, Netherlands and Spain — which reported 100% coverage.

In both 2023 and 2024, use of HMPs was reported for all four species. In 2024, six countries reported use of HMPs under the mandatory scope (28 products in total), while in 2023, five countries reported HMP use (30 products in total). Due to technical issues, all reported use of antimicrobial HMPs for both years was submitted via the ASU use questionnaire rather than the ASU use templates and therefore are not included in the data presented in this report. Based on the information provided by countries in the questionnaire, the use of these products is considered to be negligible. Consequently, all quantitative use data presented in this report refer exclusively to antimicrobial VMPs.

In addition, 14 countries — Bulgaria, Croatia, Estonia, France, Germany, Hungary, Iceland, Lithuania, Malta, the Netherlands, Portugal, Romania, Slovakia and Spain — reported use data under the voluntary reporting scope (16.5 tonnes), which covers use of topical antibacterials, antifungals, antiprotozoals, antivirals and antiinfectives. At EU level, antiprotozoals accounted for the largest proportion of the reported use of antimicrobials in the voluntary scope (78.8%), followed by topical antibacterials (21.1%), antiinfectives (0.11%) and antifungals (0.02%) (Figure 21). It is worth noting that voluntary scope data were mainly incomplete or their coverage was unknown. Croatia, the Netherlands, and Spain reported full (100%) coverage.

Table 4. Overview of antimicrobial use data reported by animal species per country in 2024

Country	Use data submitted per species[1]				Data reported by category[2]			
	Cattle	Pigs	Chickens	Turkeys	Cattle	Pigs	Chickens	Turkeys
Austria	Yes	Yes	Yes	Yes	C	C	C	C
Belgium	Yes	Yes	Yes	Yes	C	C	C	C
Bulgaria	Yes	Yes	Yes	Yes	C	C	C	C
Croatia	Yes	Yes	Yes	Yes	C	C	C	C
Cyprus	Yes	Yes	Yes	Yes	S	S	S	S
Czechia	Yes	Yes	Yes	Yes	C	C	C	C
Denmark	Yes	Yes	Yes	Yes	C	C	C	C
Estonia	Yes	Yes	Yes	NU	C	C	C	N/A
Finland	Yes	Yes	Yes	Yes	C	C	C	C
France	Yes	Yes	Yes	Yes	C	C	C	C
Greece	Yes	Yes	Yes	NU	S	C	C	N/A
Germany	Yes	Yes	Yes	Yes	C	C	C	C
Hungary	Yes	Yes	Yes	Yes	C	C	C	C
Iceland	Yes	Yes	NU	NU	C	C	N/A	N/A
Ireland	No	Yes	Yes	Yes	N/A	S	C	S
Italy	Yes	Yes	Yes	Yes	C	C	C	C
Latvia	No	No	Yes	NU	N/A	N/A	C	N/A
Lithuania	Yes	Yes	Yes	Yes	S	S	C	C
Luxembourg	Yes	Yes	Yes	NP	C	C	C	N/A
Malta	Yes	Yes	Yes	NP	C	C	C	N/A
Netherlands	Yes	Yes	Yes	Yes	C	C	C	C
Norway	Yes	Yes	Yes	Yes	C	C	C	C
Poland	Yes	Yes	Yes	Yes	C	C	C	C
Portugal	Yes	Yes	Yes	Yes	S	C	C	C
Romania	Yes	Yes	Yes	Yes	C	C	C	C
Slovakia	Yes	Yes	Yes	Yes	C	C	C	C
Slovenia	Yes	Yes	Yes	Yes	C	C	C	C
Spain	Yes	Yes	Yes	Yes	C	C	C	C
Sweden	Yes	Yes	Yes	Yes	C	C	C	C

[1] Data submitted per species: Yes = there is production of the animal species in a country's territory, antimicrobials were used in this species and use data were reported to the Agency; No = there is production of the animal species in a country's territory, antimicrobials were used in these species but use data were not reported to the Agency; NP (no production) = the animal species is not produced in a country's territory; and NU (no use) = there is production of the animal species in a country's territory but no antimicrobials were used in said species.

[2] Data reported by category: C = use data were reported at category level for the animal species; S = use data were reported at species level for the animal species; and N/A = use data were not reported for this animal species.

Of the 29 countries that provided use data for 2024, 22 countries provided use data for at least the antimicrobials from the mandatory scope for all animal species and categories or stages referred to in Article 15(1) of Commission Regulation (EU) 2021/578. Of the remaining 7 countries: 2 did not provide data for at least one of the animal species (Ireland, Latvia) and 5 only provided data at species and not category level for at least one of the animal species (Cyprus, Greece, Ireland, Lithuania and Portugal) (Table 4).

As national use data collection systems can vary considerably, countries had to select one or more data providers and data sources from those listed in the legislation[36]. For more information about the use data collection systems set up in each country, see Annex 7.

Similar to 2023 data, veterinarians were the most selected use data providers for 2024 and were chosen by all but two countries (Table A5). Furthermore, veterinarians were the sole data providers in 17 countries while for the remaining 12, other providers were also used including pharmacies (7), end users (including farmers or breeders) (6), feed mills (4), and retailers (1).

Regarding use data sources, in 2024 the most frequently used data source were veterinary practice records (18 countries), followed by treatment logbooks (11), pharmacy records (6), prescriptions (5), delivery notes (3), health records (2) and invoices from farms (1) (Table A5). Compared to 2023, all countries largely maintained the same use data sources.

2.2. Cattle: reported use of antimicrobial medicinal products (mandatory scope)

EU countries, Iceland and Norway must collect data on antimicrobial use for cattle, distinguishing between the following categories: dairy cattle, beef cattle, beef cattle under one year of age and other cattle. For 2024, 27 countries submitted use data for the cattle species while 2 did not submit any data (Ireland and Latvia[37]). Of the 27 countries that submitted data, all but 4 (Cyprus, Greece, Lithuania and Portugal) reported use data at category level.

Countries in which meat production from beef cattle under one year of age exceeds 10,000 tonnes per year are obliged to report use data for this category separately. Other countries can report the use separately but are not obliged to. In 2024, 12 countries reported use data for this category. Based on the data available in the Eurostat database Slaughtering in slaughterhouses - annual data, 8 countries — Belgium, Denmark, France, Germany, Italy, the Netherlands, Portugal and Spain — exceeded the 10,000 tonne threshold in 2024 and were therefore required to report use data in this category separately from use data reported in the beef cattle category. All of these countries complied with this requirement, except Portugal. Additionally, 5 countries — Croatia, Poland, Romania, Slovakia and Slovenia — voluntarily reported data for beef cattle under one year of age.

[36] As per Article 13 of Commission Delegated Regulation (EU) 2021/578.
[37] Ireland was not able to report data on antimicrobial use in cattle for 2024 due to their National Veterinary Prescription System, required for the collection of use data in this species, going live in January 2025. Latvia was not able to report data on antimicrobial use in cattle for 2024 as the development of their national regulation and their data collection system are ongoing.

The coverage of use data reported for cattle in 2024 varied significantly across countries: 8 countries reported 90–100% coverage, 8 reported 70–89% coverage, 3 reported 40% or lower coverage, and 8 indicated incomplete coverage. Compared to countries' coverage for 2023, coverage of the use data reported for cattle improved in 10 countries in 2024 (Table 5).

Table 5. Reported use of antimicrobial medicinal products in **cattle** (in tonnes of active substance) and reported data coverage (in %) by country and year[1]

Country	2023		2024		Data usability
	Use (tonnes)	Coverage	Use (tonnes)	Coverage	
Austria	7.9	70–90%	8.5	>80%	Progress tracking
Belgium	55.7	Incomplete	40.1	>80%	Progress tracking
Bulgaria	0.77	35%	0.60	33%	Progress tracking
Croatia	1.3	100%	1.4	100%	ESUAvet analysis
Cyprus	0.47	Incomplete	0.50	Incomplete	Progress tracking
Czechia	6.2	>98%	7.2	>98%	ESUAvet analysis
Denmark	7.5	100%	7.9	100%	ESUAvet analysis
Estonia	1.5	Incomplete	1.3	90%	ESUAvet analysis
Finland	2.0	Incomplete	2.5	80%	Progress tracking
France	10.5	10%	21.1	19%	Progress tracking
Germany	99.5	80%*	122.4	87%*	Progress tracking
Greece[2]	No data reported	-	0.34	30%	Progress tracking
Hungary	1.5	Incomplete	1.8	Incomplete	Progress tracking
Iceland	0.07	Incomplete	0.08	Incomplete	Progress tracking
Ireland[2]	No data reported	-	No data reported	-	Progress tracking
Italy	76.4	100%	74.2	100%	ESUAvet analysis
Latvia[2]	No data reported	-	No data reported	-	Progress tracking
Lithuania	0.90	60–70%	9.4	Incomplete	Progress tracking
Luxembourg	1.1	Incomplete	0.38	Incomplete	Progress tracking
Malta	0.07	Incomplete	0.14	Incomplete	Progress tracking
Netherlands	63.5	100%	59.4	100%	ESUAvet analysis
Norway	1.3	85%*	1.3	78.4%*	Progress tracking
Poland	2.7	Incomplete	0.22	Incomplete	Progress tracking
Portugal	3.4	70%*	4.7	87.5%*	Progress tracking
Romania	187.2	Incomplete	24.7	Incomplete	Progress tracking
Slovakia	0.42	71%*	0.30	80%*	Progress tracking
Slovenia	1.2	100%	1.4	100%	ESUAvet analysis
Spain	68.0	100%	76.2	100%	ESUAvet analysis
Sweden	1.6	55–70%	2.0	70-85%	Progress tracking

[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Ireland and Latvia did not report data on antimicrobial use in cattle for 2023 or 2024. Greece did not report data for cattle for 2023.
*Coverage provided for all use data in general and not specified per animal species.

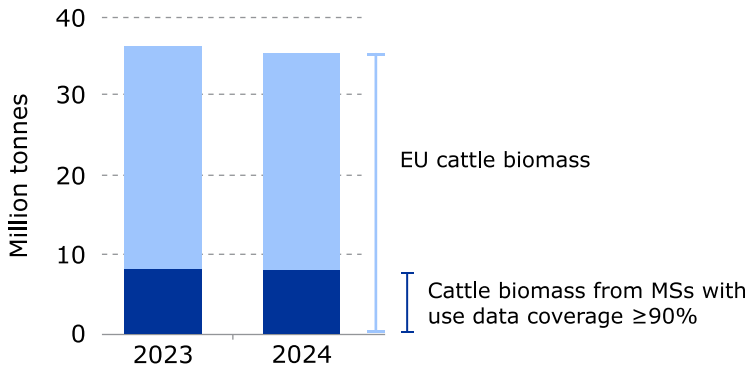
Changes in reported use between 2023 and 2024 may reflect changes in coverage — or in the method used to calculate coverage — rather than actual changes in antimicrobial use. For this reason, only data from countries that declared at least 90% coverage were used for further analysis. Data from countries below this threshold are included for tracking purposes only, to assess improvements in data quality. It is important to note that due to differences in methodology used to estimate coverage, antimicrobial use data should not be compared between countries.

In 2024, 8 countries reported use data for cattle with coverage ≥90%: Croatia, Czechia, Denmark, Estonia, Italy, Netherlands, Slovenia, and Spain. The total use reported in these countries for cattle ranged between 1.3 and 76.2 tonnes.

In 2024, the total EU biomass for cattle was 35.5 million tonnes, of which 58.1% corresponded to dairy cattle and 41.9% beef cattle (including beef cattle under one year of age)[38]. Compared to 2023, the EU biomass for cattle decreased 2.4%.

The 8 EU countries that submitted use data for cattle with coverage ≥90% in 2024 accounted for 22.9% of the total EU cattle biomass, similar to 2023 (22.8%) (Figure 22). For this reason, the use data submitted for this animal species were not analysed at EU level.

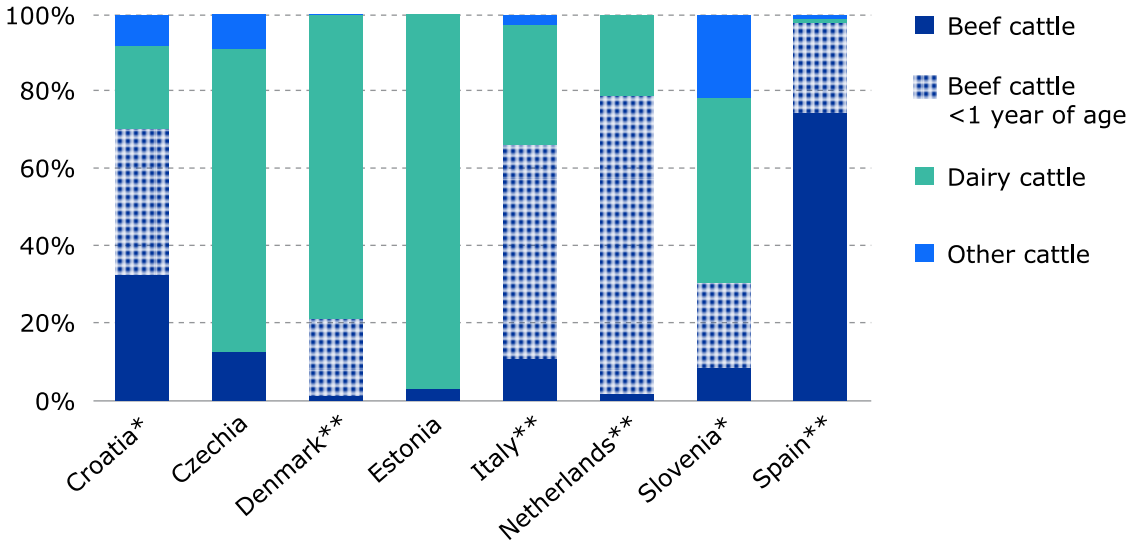
Figure 22. Proportion of EU **cattle** biomass corresponding to Member States with use data coverage ≥ 90% (dark blue) by year



Use data are presented stratified by antimicrobial class and product form at **species-level** for the 8 countries with coverage ≥90%. Countries are required to report use data separately for different cattle categories[39], as illustrated in Figure 23, which shows the distribution of reported antimicrobial use by **cattle categories** expressed as percentages of total tonnes used. These categories are defined in Article 15(1)(a) of Commission Delegated Regulation (EU) 2021/578 and further detailed in EMA's manual for reporting antimicrobial use data per animal categories. Specifically, cattle are categorised as **beef cattle** (raised for meat production and intended for slaughter, including beef cattle under one year of age), **dairy cattle** (kept exclusively or principally for milk production for human consumption, including processing into dairy products), and **other cattle** (those not meeting the descriptions of beef or dairy cattle).

[38] The 'other cattle' category does not have an assigned animal biomass as described in the Guideline on reporting antimicrobial sales and use in animals at the EU level – denominators and indicators (EMA/CVMP/882931/2022).
[39] Coverage is reported at species level. It is unknown whether there are any differences between coverage of use for the different animal categories.

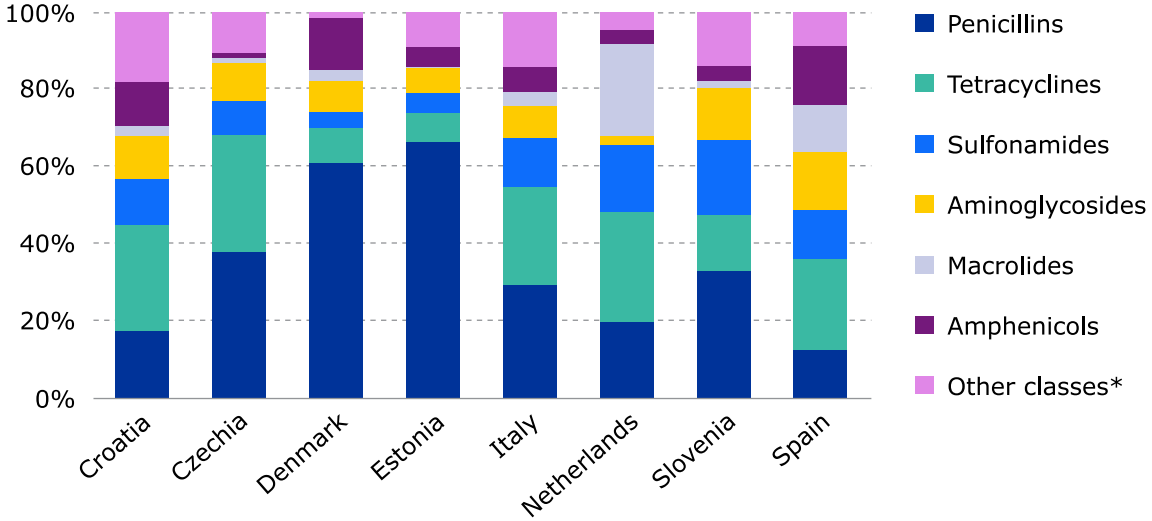
Figure 23. Use in **cattle** by animal category, in tonnes of active substance, as reported by countries (with use data coverage ≥90%), for 2024[1]



[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
* Countries that voluntarily distinguished use data for beef cattle under one year of age from that for beef cattle.
** Countries in which the production of beef cattle for slaughter under one year of age exceeds 10,000 tonnes per year were obliged to report use data in this category separately from the use data reported in the beef cattle category.

At **species level**, in the 8 countries with coverage ≥90%, penicillins and tetracyclines were the most used antimicrobial classes in cattle, accounting for 36.2–74.1% of total use in this species. Penicillins were the most used in half of these countries (29.4–66.4%) and tetracyclines were the most used in the other half (14.6–28.7%). Other commonly used classes included sulfonamides (4.1–19.5%), aminoglycosides (2.3–14.8%), macrolides (0.35–23.7%) and amphenicols (1.2–15.1%) (Figure 24). It is important to note that stratification by antimicrobial class would likely differ if data were analysed by animal category.

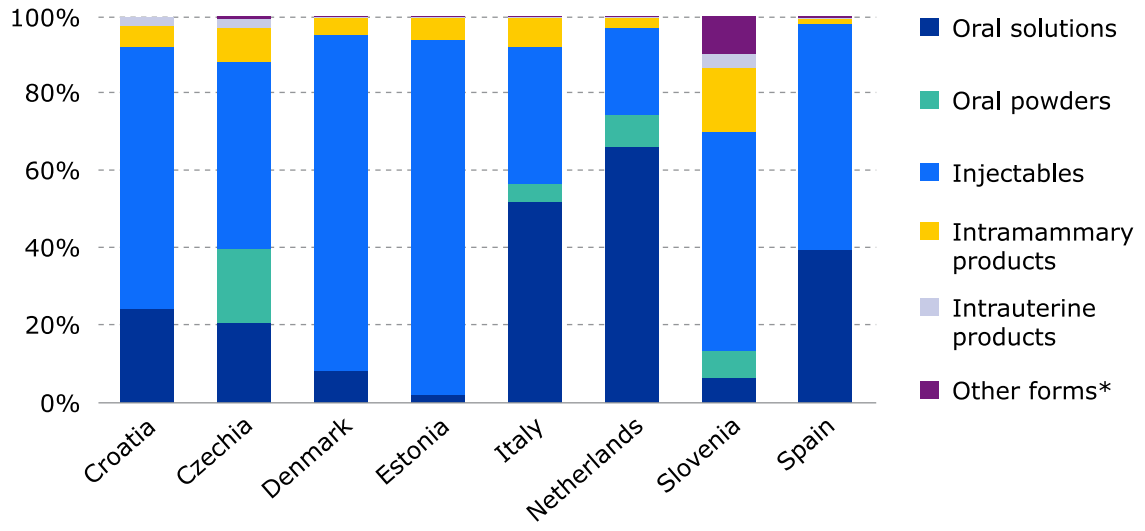
Figure 24. Use in **cattle** by antimicrobial class, in tonnes of active substance, by country (with use data coverage ≥90%), for 2024[1]



[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
*Other classes include 1st- and 2nd-generation cephalosporins, 3rd- and 4th-generation cephalosporins, fluroquinolones, lincosamides, other quinolones, polymyxins, trimethoprim and other antibacterials.

Figure 25 shows antimicrobial use in cattle by product form. Injectable and oral product forms were the most used in the 8 countries with coverage ≥90%. In 6 of these 8 countries, injectable products were the predominant form, accounting for 22.5–91.8% of total use. Oral solutions were the most used in the remaining 2 countries (52.2–66.3%). All 8 countries reported use of intramammary (1.2–16.5%) and intrauterine products (0.06–3.5%). Some countries also reported use of oral powders (4.5–19.1%) and of other forms, such as oral pastes, premixes and tablets (0–9.7%). It is important to note that stratification by product form would likely differ if data were analysed by animal category.

Figure 25. Use in **cattle** by product form, in tonnes of active substance, by country (with use data coverage ≥90%), for 2024[1]



[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
*Other forms include oral pastes, premixes and tablets.

2.3. Pigs: reported use of antimicrobial medicinal products (mandatory scope)

EU countries, Iceland and Norway must collect data on antimicrobial use for pigs, distinguishing between the following categories: fattening pigs and other pigs. For 2024, all reporting countries except one (Latvia)[40] submitted use data for the pig species. Of those that submitted data, all but 3 (Cyprus, Ireland and Lithuania) reported data at category level.

The coverage of use data reported for pigs varied greatly across countries: 12 countries reported 90–100% coverage, 6 reported 70–89% coverage, 4 reported 69% or lower coverage, and 6 reported incomplete coverage (Table 6). Compared to 2023, in 2024 the reported coverage of the use data for pigs improved in 9 countries.

Changes in reported use between 2023 and 2024 may reflect changes in coverage — or in the method used to calculate coverage — rather than actual changes in antimicrobial use. For this reason, only data from countries that declared at least 90% coverage were used for further analysis. Data from countries below this threshold are included for tracking purposes only, to assess improvements in data

[40] Latvia was not able to report data on antimicrobial use in pigs for 2024 as the development of their national regulation and their data collection system are ongoing.

quality. It is important to note that due to differences in methodology used to estimate coverage, antimicrobial use data should not be compared between countries.

Table 6. Reported use of antimicrobial medicinal products in **pigs** (in tonnes of active substance) and reported data coverage (in %) by country and year[1]

Country	2023		2024		Data usability
	Use (tonnes)	Coverage	Use (tonnes)	Coverage	
Austria	17.9	80-95%	18.6	>90%	ESUAvet analysis
Belgium	58.2	100%	52.9	60-70%	Progress tracking
Bulgaria	72.7	35%	3.4	39%	Progress tracking
Croatia	5.9	100%	7.8	100%	ESUAvet analysis
Cyprus	15.3	Incomplete	14.9	Incomplete	Progress tracking
Czechia	12.8	>98%	13.2	>98%	ESUAvet analysis
Denmark	67.6	100%	68.1	100%	ESUAvet analysis
Estonia	2.5	Incomplete	2.8	90%	ESUAvet analysis
Finland	1.4	Incomplete	1.8	75%	Progress tracking
France	8.6	16%	14.2	26%	Progress tracking
Germany	230.4	80%*	273.8	87%*	Progress tracking
Greece	0.07	Incomplete	0.02	35%	Progress tracking
Hungary	28.8	80%	32.2	80%	Progress tracking
Iceland	0.06	100%	0.04	90%	ESUAvet analysis
Ireland	32.0	>90%	57.2	>90%	ESUAvet analysis
Italy	338.2	100%	298.3	100%	ESUAvet analysis
Latvia[2]	No data reported	-	No data reported	-	Progress tracking
Lithuania	0.61	60–70%	2.8	Incomplete	Progress tracking
Luxembourg	0.35	Incomplete	0.35	Incomplete	Progress tracking
Malta	0.51	Incomplete	0.07	Incomplete	Progress tracking
Netherlands	40.3	100%	40.5	100%	ESUAvet analysis
Norway	0.88	85%*	0.50	78.4%*	Progress tracking
Poland	3.2	Incomplete	4.4	Incomplete	Progress tracking
Portugal	33.9	70%*	48.0	87.5%*	Progress tracking
Romania	312.0	Incomplete	277.3	Incomplete	Progress tracking
Slovakia	20.0	71%*	2.4	80%*	Progress tracking
Slovenia	1.2	100%	1.3	100%	ESUAvet analysis
Spain	937.0	100%	1135.2	100%	ESUAvet analysis
Sweden	3.4	>90%	3.3	>95%	ESUAvet analysis

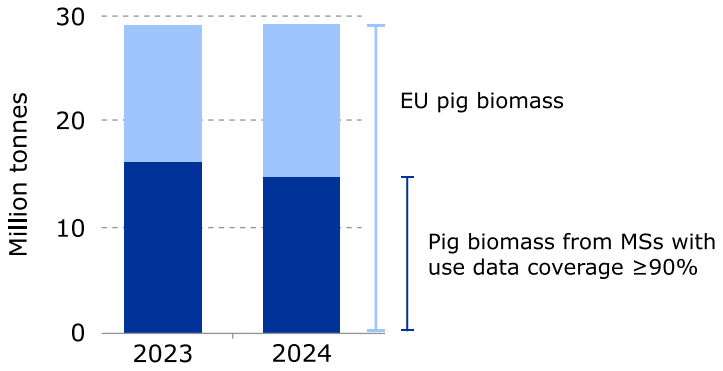
[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Latvia did not report use data for pigs for 2023 or 2024.
*Coverage provided for all use data in general and not specified per animal species.

In 2024, 12 countries reported use data for pigs with coverage ≥90%: Austria, Croatia, Czechia, Denmark, Estonia, Iceland, Ireland, Italy, Netherlands, Slovenia, Spain and Sweden. The total use reported in these countries for pigs ranged between 0.04 and 1,135.2 tonnes.

In 2024, the total EU biomass for pigs was 29.1 million tonnes, all of which corresponded to fattening pigs[41]. Compared to 2023, the EU biomass for pigs increased by 0.58%.

The 11 EU countries that submitted use data for pigs with coverage ≥90% accounted for 50.8% of the total EU pig biomass (Figure 26). This is slightly less than in 2023, when 12 EU countries with coverage ≥90% accounted for 55.6% of the total EU pig biomass. For this reason, the use data submitted for this animal species was not analysed at EU level.

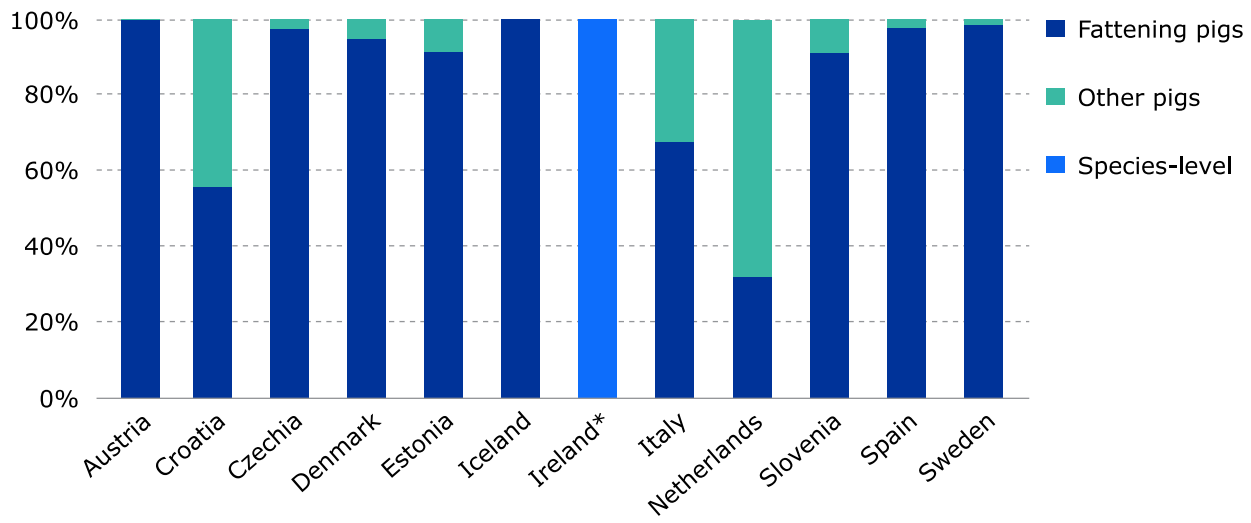
Figure 26. Proportion of EU **pig** biomass corresponding to Member States with use data coverage ≥90% (dark blue) by year



Use data are presented stratified by antimicrobial class and product form at **species-level** for the 12 countries with coverage ≥90%. Countries are required to report use data separately for different pig categories[42], as illustrated in Figure 27, which shows the distribution of reported antimicrobial use by **pig categories** expressed as percentages of total tonnes used. These categories are defined in Article 15(1)(b) of Commission Delegated Regulation (EU) 2021/578 and in EMA's manual for reporting antimicrobial use data per animal categories. Specifically, pigs are categorised as **fattening pigs** (raised and bred for meat production), and **other pigs** (which include animals not described as fattening pigs, such as sows used for breeding, gilts for breeding, and breeding boars in multiplying herds, nucleus herds, or artificial insemination centres).

[41] The 'other pigs' category does not have an assigned animal biomass as described in the Guideline on reporting antimicrobial sales and use in animals at the EU level – denominators and indicators (EMA/CVMP/882931/2022).
[42] Coverage is reported at species level. It is unknown whether there are any differences between coverage of use for the different animal categories.

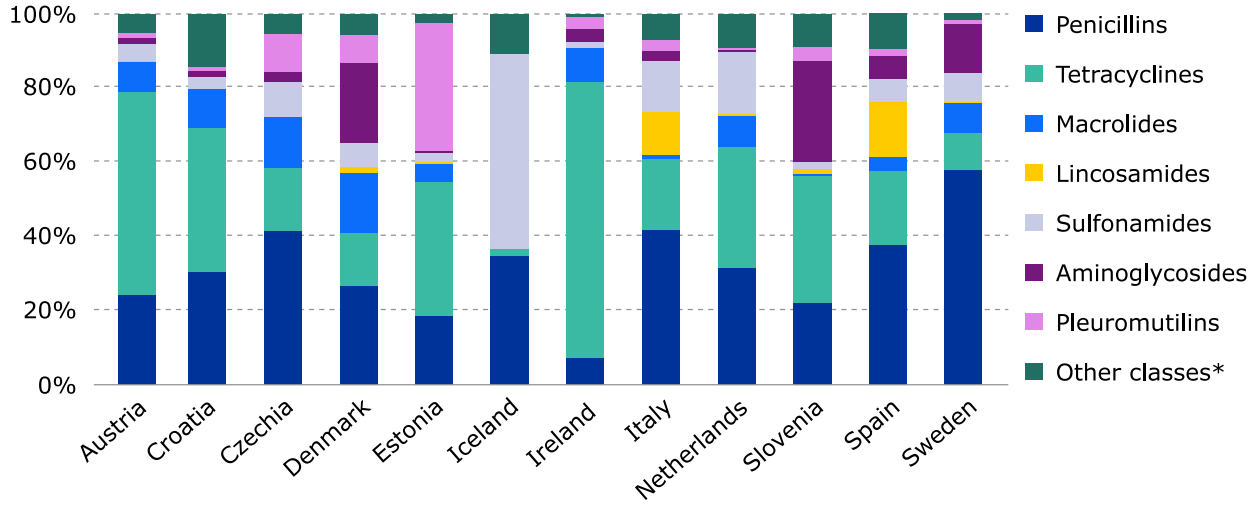
Figure 27. Use in **pigs** by animal category, in tonnes of active substance, as reported by countries (with use data coverage ≥90%), for 2024[1]



[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
* Ireland was not able to report antimicrobial use data in pigs by animal category.

At **species-level**, in the 12 countries with coverage ≥90%, penicillins and tetracyclines were the most used antimicrobial classes in pigs in all but one country, together accounting for 36.6–81.6% of total use in this species. In one country, sulfonamides were the most used class, accounting for 52.7% of the total use in pigs. Other commonly used classes included lincosamides, macrolides, aminoglycosides and pleuromutilins (Figure 28).

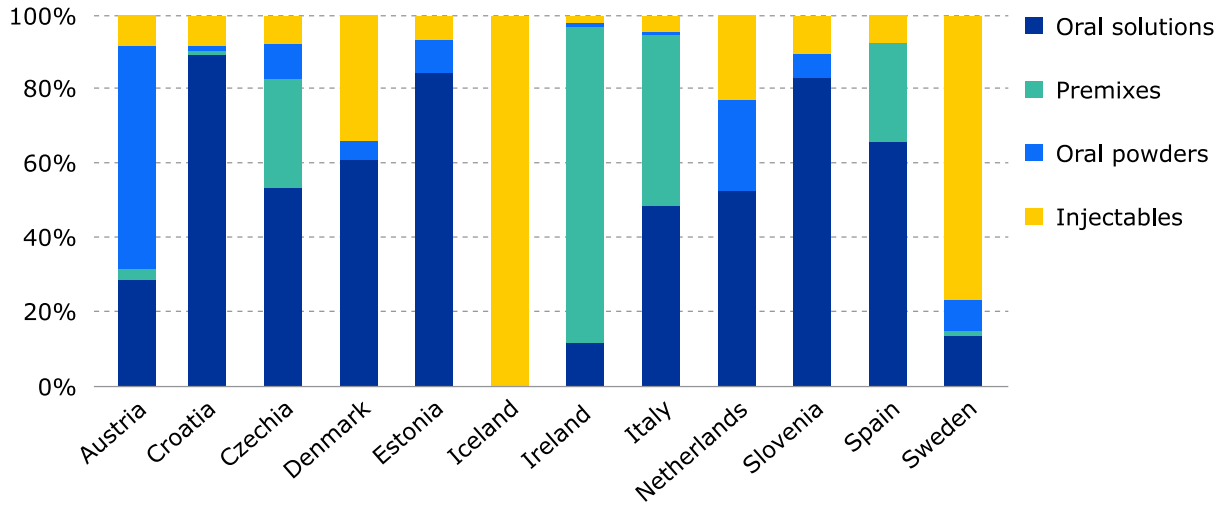
Figure 28. Use in **pigs** by antimicrobial class, in tonnes of active substance, by country (with use data coverage ≥90%), for 2024[1]



[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
*Other classes include 1st- and 2nd-generation cephalosporins, 3rd- and 4th-generation cephalosporins, amphenicols, fluroquinolones, other quinolones, polymyxins, trimethoprim and other antibacterials.

Figure 29 shows antimicrobial use in pigs by product form. Only use of oral and injectable products forms was reported in the 12 countries with coverage ≥90%. Oral forms, such as oral solutions, premixes and oral powders, were the most used in 10 of the 12 countries, accounting for 66.2–98.2% of total use in pigs. Injectable products were the most used product forms in the remaining 2 countries (76.5–100%).

Figure 29. Use in **pigs** by product form, in tonnes of active substance, by country (with use data coverage ≥90%), for 2024[1,2]



[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Not included in the figure is the negligible use of other product forms such as intramammary products, intrauterine products, oral pastes and tablets.

2.4. Chickens: use of antimicrobial medicinal products (mandatory scope)

EU countries, Iceland and Norway must collect data on antimicrobial use for chickens, distinguishing between the following categories: laying hens, broilers and other chickens. For 2024, all countries submitted use data for the chicken species. All but one country (Cyprus) reported data at category level, and one country (Iceland) reported that no antimicrobials were used in this species.

The coverage of use data reported for chickens varied greatly across countries: 13 reported 90–100% coverage, 5 reported 70–89% coverage, 3 reported 43% or lower coverage, and 8 reported incomplete coverage (Table 7). Compared to 2023, in 2024 coverage of the use data reported for chickens improved in 6 countries.

Changes in reported use between 2023 and 2024 may reflect changes in coverage — or in the method used to calculate coverage — rather than actual changes in antimicrobial consumption. For this reason, only data from countries that declared at least 90% coverage were used for further analysis. Data from countries below this threshold are included for tracking purposes only, to assess improvements in data quality. It is important to note that due to differences in methodology used to estimate coverage, antimicrobial use data should not be compared between countries.

Table 7. Reported use of antimicrobial medicinal products in **chickens** (in tonnes of active substance) and reported data coverage (in %) by country and year[1]

Country	2023		2024		Data usability
	Use (tonnes)	Coverage	Use (tonnes)	Coverage	
Austria	1.5	100%	1.6	100%	ESUAvet analysis
Belgium	19.0	100%	17.4	85%	Progress tracking
Bulgaria	1.8	35%	3.7	39%	Progress tracking
Croatia	2.9	100%	0.33	100%	ESUAvet analysis
Cyprus	2.3	Incomplete	3.3	Incomplete	Progress tracking
Czechia	2.1	>98%	1.9	>98%	ESUAvet analysis
Denmark	0.84	100%	0.75	100%	ESUAvet analysis
Estonia	<0.01	Incomplete	<0.01	Incomplete	Progress tracking
Finland	0.04	100%	0.08	100%	ESUAvet analysis
France	10.5	27%	15.8	43%	Progress tracking
Germany	75.5	80%*	67.4	87%*	Progress tracking
Greece	0.01	Incomplete	0.15	30%	Progress tracking
Hungary	4.4	Incomplete	4.3	Incomplete	Progress tracking
Iceland[2]	0	100%	0	100%	ESUAvet analysis
Ireland	0.71	>90%	1.4	>90%	ESUAvet analysis
Italy	39.1	100%	40.0	100%	ESUAvet analysis
Latvia	0.25	100%	0.25	100%	ESUAvet analysis
Lithuania	0.01	60–70%	0.95	Incomplete	Progress tracking
Luxembourg	<0.001	Incomplete	<0.001	Incomplete	Progress tracking
Malta	0.03	Incomplete	0.06	Incomplete	Progress tracking
Netherlands	8.1	100%	8.0	100%	ESUAvet analysis
Norway	<0.01	85%*	<0.01	78.4%*	Progress tracking
Poland	44.6	Incomplete	30.9	Incomplete	Progress tracking
Portugal	10.5	70%*	11.4	87.5%*	Progress tracking
Romania	26.0	Incomplete	64.8	Incomplete	Progress tracking
Slovakia	2.4	71%*	3.7	80%*	Progress tracking
Slovenia	1.2	100%	1.2	100%	ESUAvet analysis
Spain	34.0	100%	29.5	100%	ESUAvet analysis
Sweden	0.02	>95%	0.02	85-98%	ESUAvet analysis

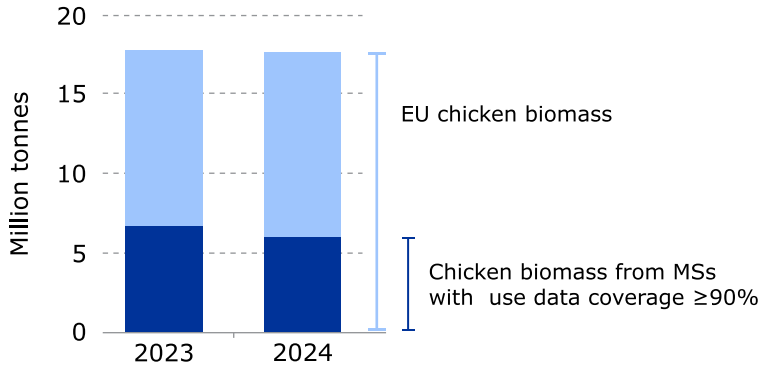
[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] There was no or very minimal use of antimicrobials chickens in Iceland in 2023 or 2024.
*Coverage provided for all use data un general and not specified per animal species.

In 2024, 13 countries reported use data for chickens with coverage ≥90%: Austria, Croatia, Czechia, Denmark, Finland, Iceland, Ireland, Italy, Latvia, Netherlands, Slovenia, Spain and Sweden. The total use reported in these countries for chickens ranged between 0 and 40 tonnes.

In 2024, the total EU biomass for chickens was 17.5 million tonnes, of which 93.9% corresponded to broilers and 6.1% to laying hens[43]. Compared to 2023, the EU biomass for chickens decreased by 0.72%.

The 12 EU countries that submitted use data for chickens with coverage ≥90% accounted for only 33.9% of the total EU chicken biomass (Figure 30). This is slightly less than in 2023, when 13 EU countries with coverage ≥90% covered 37.8% of the total EU chicken biomass. For this reason, the use data submitted for this animal species was not analysed at EU level.

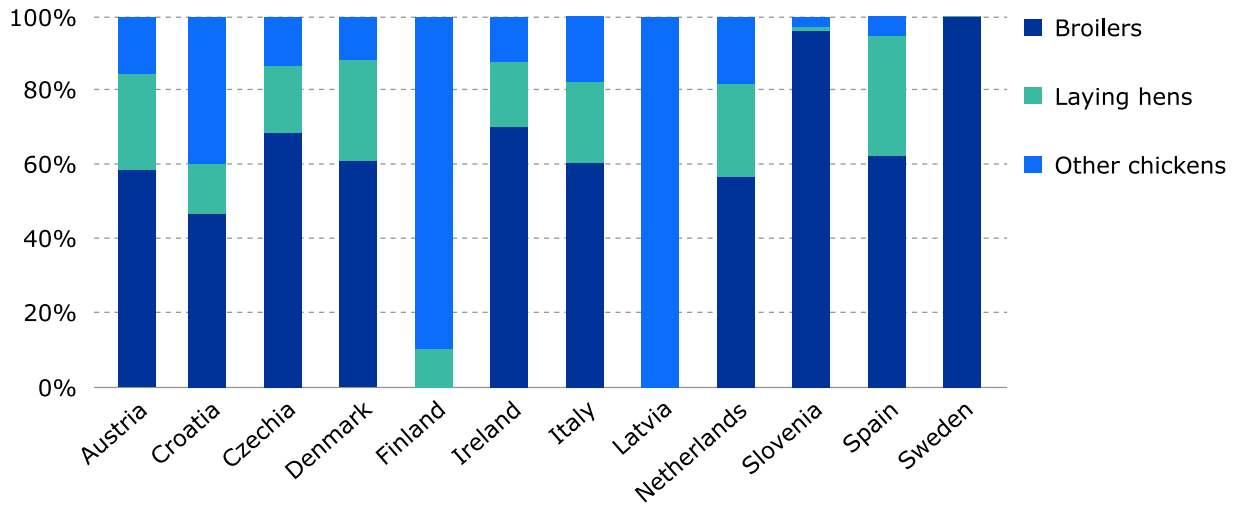
Figure 30. Proportion of EU **chicken** biomass corresponding to Member States with use data coverage ≥90% (dark blue) by year



Use data are presented stratified by antimicrobial class and product form at **species-level** for the 12 of the 13 countries with coverage ≥90%[44]. Countries are required to report use data separately for different chicken categories[45], as illustrated in Figure 31, which shows the distribution of reported antimicrobial use by **chicken categories** expressed as percentages of total tonnes used. These categories are defined in Article 15(1)(c) of Commission Delegated Regulation (EU) 2021/578 and further detailed in EMA's manual for reporting antimicrobial use data per animal categories. Specifically, chickens are categorised as **broilers** (all chickens bred and raised for meat production), **laying hens** (all female chickens primarily kept for the production of eggs for consumption), and **other chickens** (those not meeting the descriptions of broilers or laying hens, including chickens for breeding).

[43] The 'other chickens' category does not have an assigned animal biomass as described in the Guideline on reporting antimicrobial sales and use in animals at the EU level – denominators and indicators (EMA/CVMP/882931/2022)
[44] Iceland was excluded because there was no antimicrobial use in chickens in the country in 2024.
[45] Coverage is reported at species level. It is unknown whether there are any differences between coverage of use for the different animal categories.

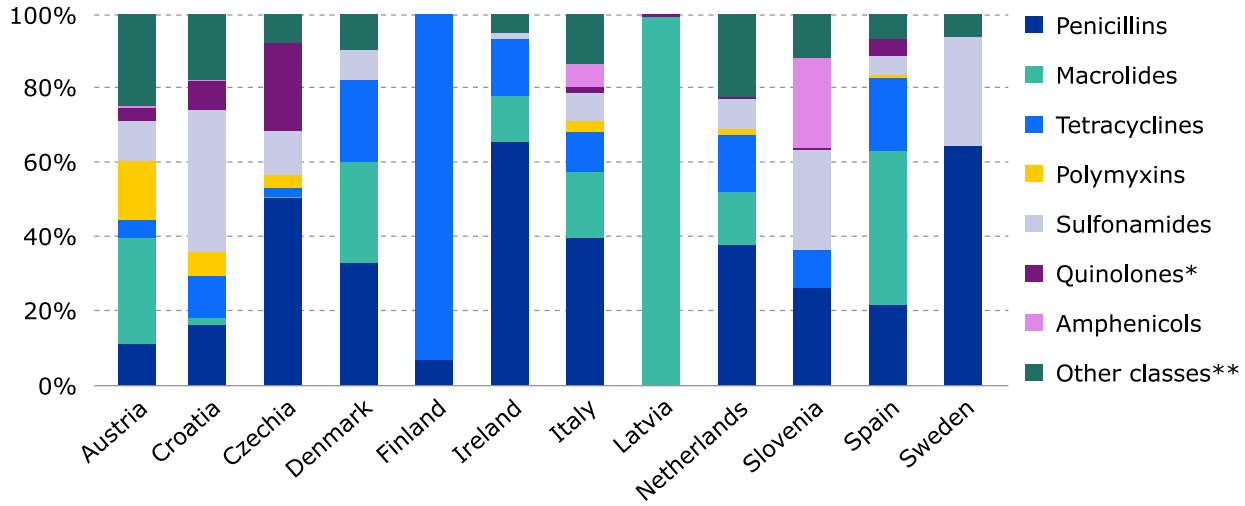
Figure 31. Use in **chickens** by animal category, in tonnes of active substance, as reported by countries (with use data coverage ≥90%), for 2024[1,2]



[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Iceland not shown because there was no antimicrobial use in chickens in the country in 2024.

At **species level**, the 12 countries with coverage ≥90% presented diverse stratification patterns of antimicrobial use by class in chickens (Figure 32). Penicillins were the most used class in 6 countries, accounting for 27.0–65.6% of total use in this species. Other predominant classes were macrolides in 3 countries (28.6–99.3%), sulfonamides in 1 (38.3%) and tetracyclines in another (93.1%). It is important to note that stratification by antimicrobial class could differ if data were analysed by animal category.

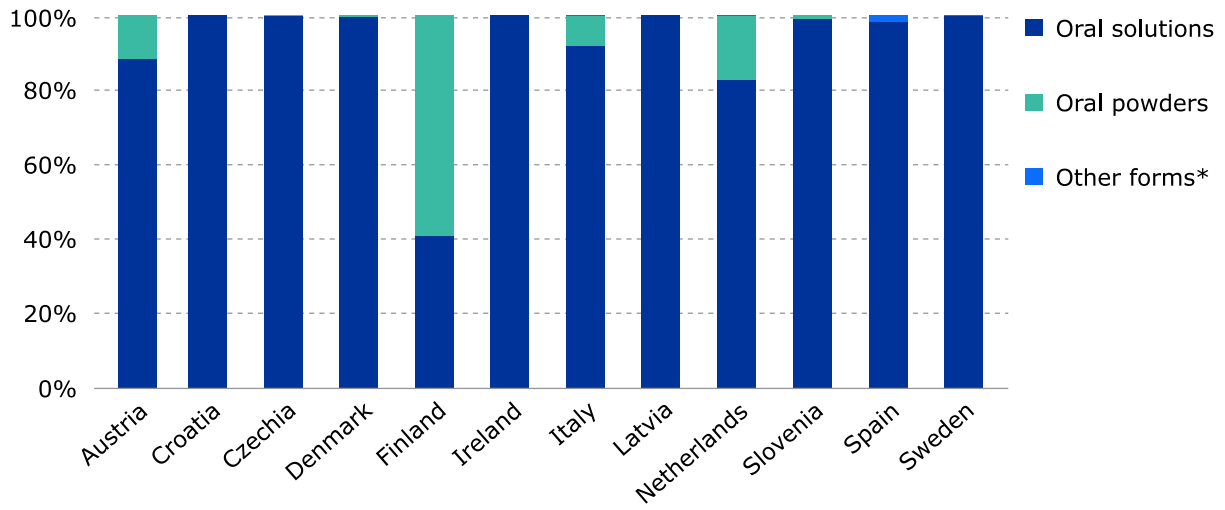
Figure 32. Use in **chickens** by antimicrobial class, in tonnes of active substance, by country (with use data coverage ≥90%), for 2024[1,2]



[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Iceland is not shown because there was no antimicrobial use in chickens in the country in 2024.
* Quinolones include fluroquinolones and other quinolones.
**Other classes include aminoglycosides, lincosamides, pleuromutilins, trimethoprim and other antibacterials.

Figure 33 shows antimicrobial use in chickens by product form. Oral products forms were the most used in the 12 countries with coverage ≥90%. More specifically, oral solutions accounted for 82.5–100% of total use in 11 countries and oral powder was the most used product form in the remaining country (59.0%). Minor use (0.02–1.7%) of other product forms, such as injectable products, oral pastes and premixes, was reported by some countries.

Figure 33. Use in **chickens** by product form, in tonnes of active substance, by country (with use data coverage ≥90%), for 2024[1,2]



[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Iceland not shown because there was no antimicrobial use in chickens in the country in 2024.
*Other forms include injectable products, oral pastes and premixes.

2.5. Turkeys: use of antimicrobial medicinal products (mandatory scope)

EU countries, Iceland and Norway must collect data on antimicrobial use for turkeys, distinguishing between the following categories: fattening turkeys and other turkeys. All of the 27 countries with turkey production in their territory submitted use data for this species (no production in Luxembourg and Malta). Of the 27 countries that provided data, all but 2 (Cyprus, Ireland) reported data at category level, and 4 countries (Estonia, Greece, Iceland and Latvia) reported that no antimicrobials were used in turkeys in 2024.

The coverage of use data reported for turkeys varied greatly across countries: 15 reported 90–100% coverage, 6 reported 70–89% coverage, 1 reported 32% coverage, and 5 reported incomplete coverage (Table 8). Compared to 2023, in 2024 coverage of the use data reported for turkeys improved in 5 countries.

Changes in reported use between 2023 and 2024 may reflect changes in coverage — or in the method used to calculate coverage — rather than actual changes in antimicrobial consumption. For this reason, only data from countries that declared at least 90% coverage were used for further analysis. Data from countries below this threshold are included for tracking purposes only, to assess improvements in data quality. It is important to note that due to differences in methodology used to estimate coverage, antimicrobial use data should not be compared between countries.

Table 8. Reported use of antimicrobial medicinal products in **turkeys** (in tonnes of active substance) and reported data coverage (in %) by country and year[1]

Country	2023		2024		Data usability
	Use (tonnes)	Coverage	Use (tonnes)	Coverage	
Austria	0.63	100%	0.64	100%	ESUAvet analysis
Belgium	0.06	Incomplete	0.87	70-80%	Progress tracking
Bulgaria	0.01	35%	<0.01	100%	ESUAvet analysis
Croatia	1.5	100%	0.01	100%	ESUAvet analysis
Cyprus	0.05	Incomplete	0.05	Incomplete	Progress tracking
Czechia	0.28	>98%	0.33	>98%	ESUAvet analysis
Denmark	0.36	100%	0.26	100%	ESUAvet analysis
Estonia[2]	0	100%	0	100%	ESUAvet analysis
Finland	0.04	100%	0.04	100%	ESUAvet analysis
France	5.3	36%	4.5	32%	Progress tracking
Germany	66.9	80%*	72.2	87%*	Progress tracking
Greece[2]	0	100%	0	100%	ESUAvet analysis
Hungary	2.5	Incomplete	2.1	Incomplete	Progress tracking
Iceland[2]	0	100%	0	100%	ESUAvet analysis
Ireland	0.52	>70%	0.03	>70%	Progress tracking
Italy	19.0	100%	16.5	100%	ESUAvet analysis
Latvia[2]	0	100%	0	100%	ESUAvet analysis
Lithuania[3]	No data reported	-	0.09	Incomplete	Progress tracking
Luxembourg[4]	N/A	N/A	N/A	N/A	N/A
Malta[4]	N/A	N/A	N/A	N/A	N/A
Netherlands	0.45	100%	0.78	100%	ESUAvet analysis
Norway	0.03	85%*	0.03	78.4%*	Progress tracking
Poland	8.5	Incomplete	10.3	Incomplete	Progress tracking
Portugal	6.1	70%*	7.9	87.5%*	Progress tracking
Romania	1.6	Incomplete	9.3	Incomplete	Progress tracking
Slovakia	0.14	71%*	0.23	80%*	Progress tracking
Slovenia	0.22	100%	0.25	100%	ESUAvet analysis
Spain	18.7	100%	18.7	100%	ESUAvet analysis
Sweden	<0.001	100%	<0.001	>98%	ESUAvet analysis

[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] There was no or very minimal use of antimicrobials in turkeys in Estonia, Greece, Iceland and Latvia in 2023 or 2024.
[3] Lithuania did not report data for turkeys for 2023.
[4] There was no production of turkeys in Luxembourg or Malta in 2023 or 2024.
*Coverage provided for all use data un general and not specified per animal species.

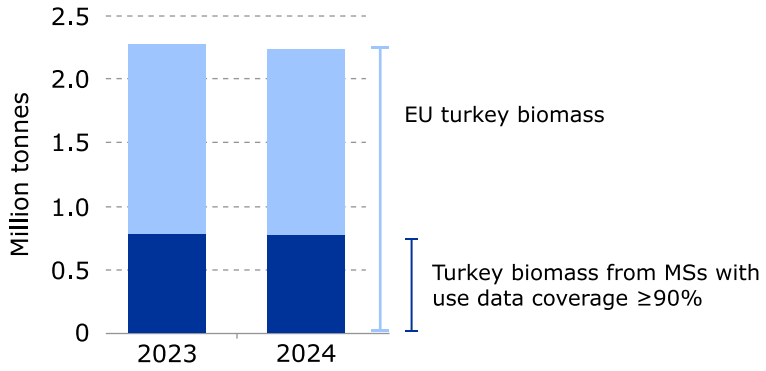
In 2024, 15 countries reported use data for turkeys with coverage ≥90%: Austria, Bulgaria, Croatia, Czechia, Denmark, Estonia, Finland, Greece, Iceland, Italy, Latvia, Netherlands, Slovenia, Spain and Sweden. The total use reported in these countries for turkeys ranged between 0 and 18.7 tonnes.

In 2024, the total EU biomass for turkeys was 2.2 million tonnes, all of which corresponded to fattening turkeys[46]. Compared to 2023, the EU biomass for turkeys decreased 1.9%.

[46] The 'other turkeys' category does not have an assigned animal biomass as described in the Guideline on reporting antimicrobial sales and use in animals at the EU level – denominators and indicators (EMA/CVMP/882931/2022).

The 14 EU countries that submitted use data for turkeys with ≥90% coverage accounted for only 34.6% of the total EU turkey biomass, similar to 2023 (34.3%) (Figure 34). For this reason, the use data submitted for this animal species was not analysed at EU level.

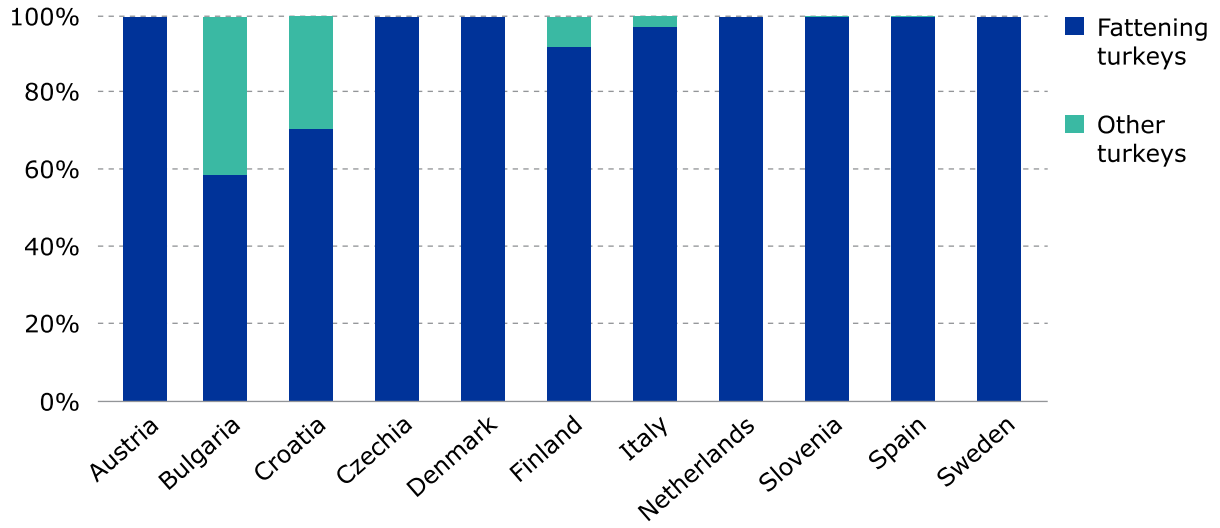
Figure 34. Proportion of EU **turkey** biomass corresponding to Member States with use data coverage ≥90% (dark blue) by year



Use data are presented stratified by antimicrobial class and product form at **species-level** for 11 of the 15 countries with ≥90% coverage[47]. Countries are required to report use data separately for different turkey categories[48], as illustrated in Figure 35, which shows the distribution of reported antimicrobial use by **turkey categories** expressed as percentage of total tonnes used. These categories are defined in Article 15(1)(d) of Commission Delegated Regulation (EU) 2021/578 and further detailed in EMA's manual for reporting antimicrobial use data per animal categories. Specifically, turkeys are categorised as **fattening turkeys** (turkeys bred and raised for meat production) and **other turkeys** (those that do not match the description of fattening turkeys and may include, among others, breeding turkeys).

[47] Estonia, Greece, Iceland and Latvia were excluded because there was no antimicrobial use in turkeys in these countries in 2024.
[48] Coverage is reported at species level. It is unknown whether there are any differences between coverage of use for the different animal categories.

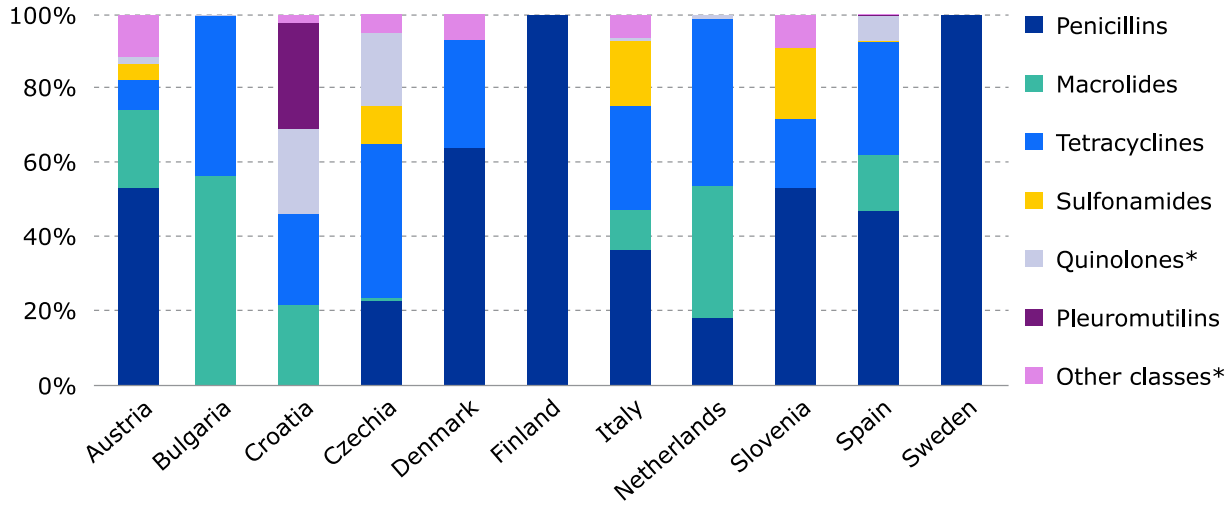
Figure 35. Use in **turkeys** by animal category, in tonnes of active substance, as reported by countries (with use data coverage ≥90%), for 2024[1,2]



[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Estonia, Greece, Iceland and Latvia not shown because there was no antimicrobial use in turkeys in these countries in 2024.

At **species level**, the 11 countries with coverage ≥90% presented diverse stratification patterns of antimicrobial use in turkeys (Figure 36). Penicillins were the most used class in 7 countries, accounting for 36.5–100% of total use in this species. Other predominant classes were tetracyclines in 2 countries (41.7–45.1%), macrolides in 1 (56.6%) and pleuromutilins in another (28.8%).

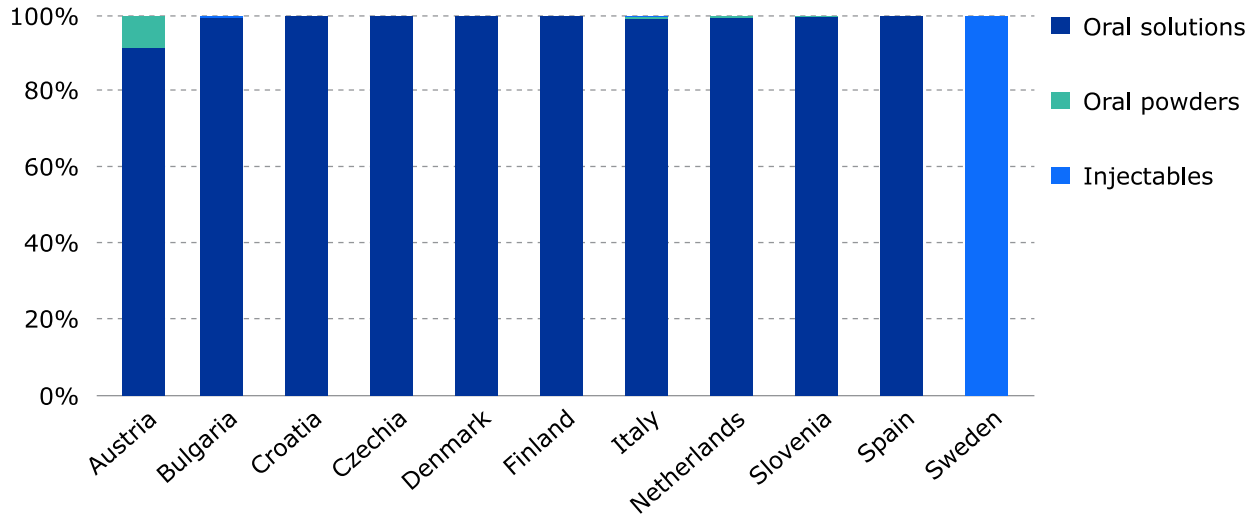
Figure 36. Use in **turkeys** by antimicrobial class, in tonnes of active substance, by country (with use data coverage ≥90%), for 2024[1,2]



[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Estonia, Greece, Iceland and Latvia are not shown because there was no antimicrobial use in turkeys in these countries in 2024.
* Quinolone use reported consisted exclusively of fluroquinolones.
**Other classes include aminoglycosides, amphenicols, lincosamides, polymyxins, trimethoprim and other antibacterials.

Figure 37 shows antimicrobial use in turkeys by product form. Ten countries almost exclusively used oral products forms, mainly oral solutions which accounted for 91.8–100% of total use. One country reported negligible use of injectables and no other forms.

Figure 37. Use in **turkeys** by product form, in tonnes of active substance, by country (with use data coverage ≥90%), for 2024[1,2]



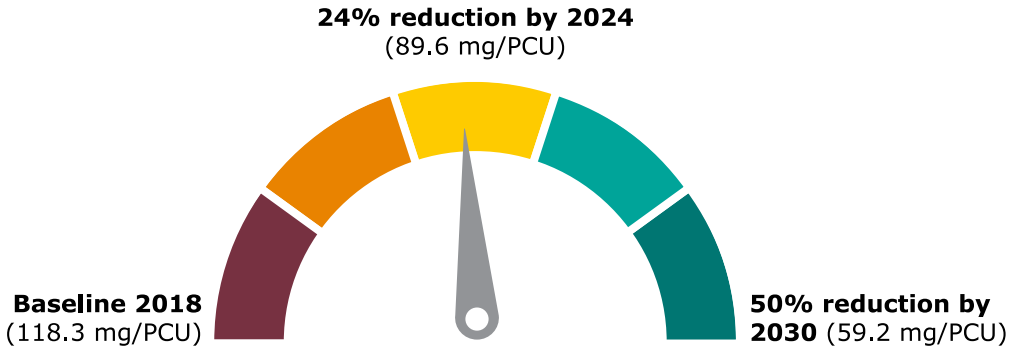
[1] Use data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Estonia, Greece, Iceland and Latvia not shown because there was no antimicrobial use in turkeys in these countries in 2024.
[2] Not included in the figure is the negligible use of premixes.

3. EU antimicrobial sales reduction target

50% reduction in overall sales for farmed animals and aquaculture by 2030

Recognising that AMR is a One Health crisis affecting both human and animal health, in 2020 the European Commission set an aspirational target of reducing overall EU sales of antimicrobials for farmed animals and aquaculture by 50% by 2030[49,50]. The 2018 reference value for overall sales of antibiotic VMPs in the EU was 118.3 mg/PCU, setting the 2030 target at 59.2 mg/PCU. For the purpose of monitoring the progress towards this target, sales data reported by the 27 EU countries to the ASU Platform were analysed using the ESVAC methodology to ensure data comparability[51]. For sales trends per country since 2018 (also for Iceland and Norway), see Annex 6.

Figure 38. EU's progress towards 50% reduction of overall antimicrobial sales for farmed animals and in aquaculture by 2030[1]

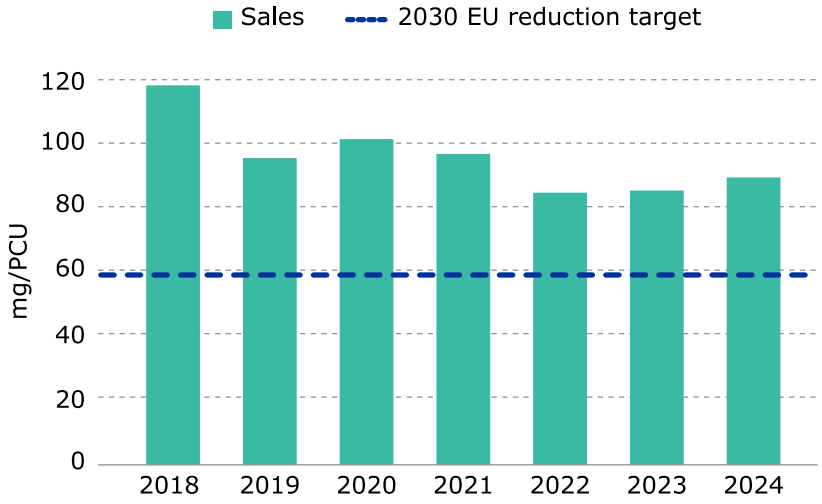


[1] EU sales (in mg/PCU) are aggregated sales for the 27 EU countries.

In 2024, the aggregated sales for the EU were 89.6 mg/PCU, representing a reduction of 28.7 mg/PCU (24.3%) compared to the 2018 reference value (Figure 38). However, 2024 marks the second consecutive year of a slight increase in sales, following the lowest recorded value in 2022 (Figure 39). Whilst the latest results may suggest that the overall declining trend is slowing down or reversing, data from future years will be needed to determine whether this reflects an actual change or a short-term fluctuation.

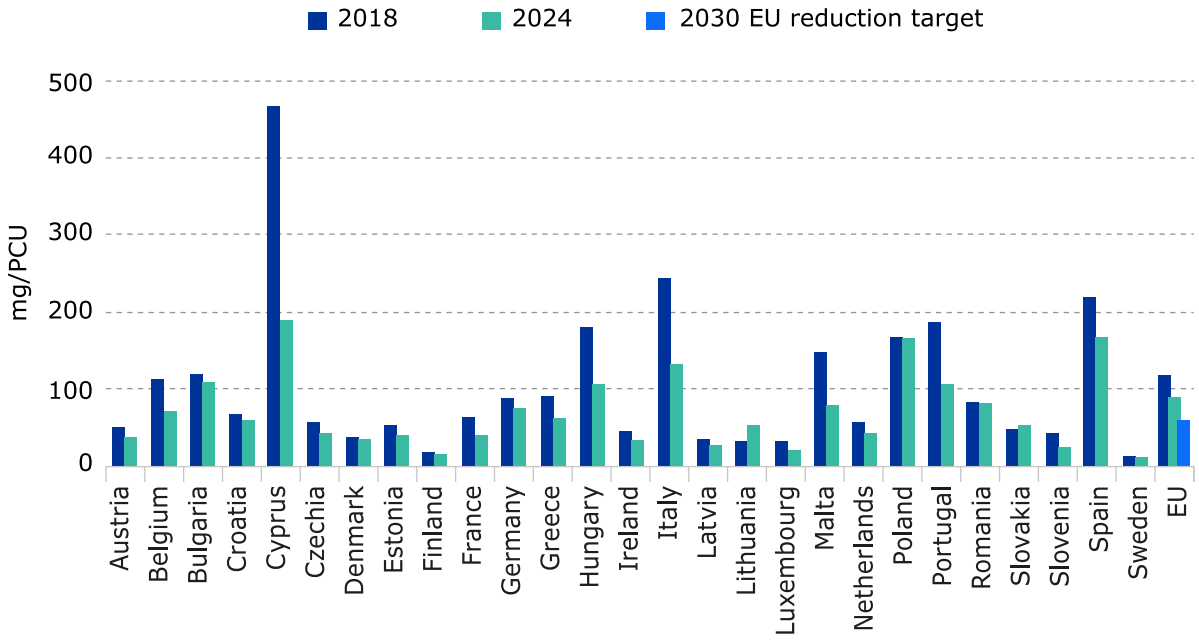
[49] Farm to Fork Strategy: https://food.ec.europa.eu/horizontal-topics/farm-fork-strategy_en.
[50] European Commission: Recommendations to EU countries as regards their strategic plan for the Common Agricultural Policy (COM/2020/846 final).
[51] For more information on the ESVAC methodology please refer to Annex 5 of the first ESUAvet report: https://www.ema.europa.eu/en/documents/report/european-sales-use-antimicrobials-veterinary-medicine-annual-surveillance-report-2023_en.pdf

Figure 39. EU's progress by year towards 50% reduction of overall antimicrobial sales for farmed animals and in aquaculture by 2030[1]



Although the 50% reduction target is set at EU level, many EU countries have decreased their sales over the past six years compared to their individual 2018 baselines (Figure 40). The extent of the decrease in sales has varied: some countries started with very low levels of antimicrobial sales, making further reductions challenging without compromising animal welfare and production, while countries with initial higher sales have more room for implementing changes. A small number of countries account for the majority of the total EU sales (Figure A1) and food-producing biomass, and their progress has a substantial impact on overall EU-level trends. Nevertheless, it remains a joint effort by all EU countries to continue improving or maintaining the appropriate use of antimicrobials in animals to meet the common 2030 reduction goal.

Figure 40. EU countries' progress in reducing antimicrobial sales (mg/PCU) for farmed animals and in aquaculture from 2018 to 2024



4. General discussion

Surveillance of antimicrobial VMP sales and antimicrobial use in animals is central to the EU's strategy and efforts to reduce the emergence and spread of AMR. Through systematic data collection, analysis and reporting, insights are gained into national and EU-wide use patterns, potential emerging risks, and the effectiveness of stewardship measures — all of which are essential for guiding evidence-based policy.

The ESUAvet surveillance framework provides an approach for reporting standardised data that promotes transparency, comparability, and accountability, while contributing to a broader EU-level understanding of antimicrobial use in animals. The reporting of 2024 data marks the second year of data reporting under ESUAvet. As countries continue to strengthen their use data collection systems, the quality and granularity of use data are expected to improve, increasing its value for documenting species-specific use, supporting and informing future policy development.

4.1. Understanding the data: quality, coverage and scope

Medicinal product data quality

Significant efforts have been made to ensure the best possible quality of the data presented in this report. This includes the medicinal product information used to calculate the total amount of antimicrobial active substance(s) per product presentation, as well as the reported sales data and use data.

During the call for 2023 data and preparation of the first ESUAvet report, EMA and reporting countries worked extensively to ensure completeness and accuracy of VMP data variables, prioritising products under the mandatory scope[52]. Because of the integration between ASU and UPD, these corrections are permanent unless the product information is purposefully changed. Most of this work was completed during the first ESUAvet reporting year, and the impact of data quality issues that remained then was estimated to be negligible.

The same quality checks were applied during the 2024 data call, focusing on products not previously validated — particularly those sold or used in 2024 but not in 2023 — and on all products within the voluntary scope sold or used in either year. As a result, further improvements were achieved, while the effort required was significantly reduced compared to the previous year. Continued attention to data quality remains essential, and the foundations laid down during the first reporting year have substantially reduced the burden of subsequent reporting.

Data coverage

Regulation (EU) 2019/6 requires all VMPs, including antimicrobial VMPs, to be sold through distributors authorised by national competent authorities. This enables reporting countries to identify all distributors of antimicrobial VMPs in their territory, allowing for full sales data coverage.

It is generally accepted that establishing a valid baseline for sales data requires at least three to four years. Given the previous reporting period under the ESVAC project, countries have been collecting sales data for longer than this period, resulting in high coverage — nearly complete for all — as well as

[52] The UPD provides the ASU Platform with all the VMP data variables required to prefill the ASU sales and use templates as described in the Annexes to the Commission Implementing Regulation (EU) No 2022/209. This avoids duplication of data input across systems and ensures a single source of information.

accuracy (Table A1). While methodologies for estimating sales data coverage and accuracy vary across countries, coverage was most often expressed as the percentage of data providers that provided sales data.

For use data, many countries have only recently begun collecting and reporting use data at species level (Annex 7), and the variability in coverage and accuracy across countries and species reflects the ongoing development of national systems (Tables 5 to 8). This report does not present country-specific methodologies, but it acknowledges that a wide range of national approaches are currently in use. Compared to the previous year, more is known, but further work is needed to develop a harmonised approach. Strengthening this aspect will be key to unlocking the full analytical potential of ESUAvet datasets.

4.2. Sales data under the mandatory scope

Quantitative data and analysis

Use of antimicrobials varies considerably between different animal species, and interpretation of sales data requires consideration of the underlying animal population composition.

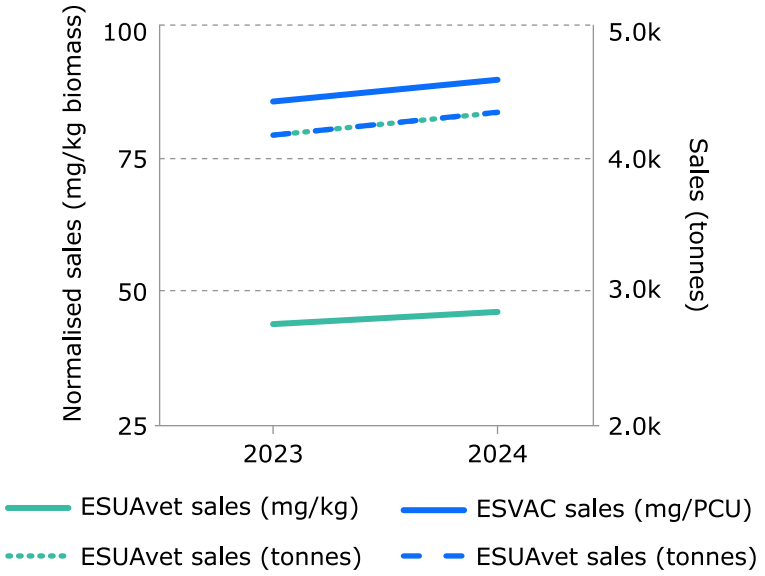
To account for differences in animal population — across countries and over time —, the ESUAvet report uses mg of active substance sold per kg of animal biomass (mg/kg) as the indicator for reporting sales of antimicrobial VMPs. This normalisation enables meaningful comparisons over time and the identification of sales patterns, by adjusting for fluctuations in the size and composition of the animal population. Since the mg/kg indicator reflects both the quantity of antimicrobial active substance sold (numerator) and the estimated biomass of animals that could potentially be treated (denominator), changes in its value may result from shifts in either component and should be interpreted accordingly.

The methodology for calculating the denominator for food-producing animals in ESUAvet builds on the ESVAC approach, with refinements aimed at improving the estimation of animal biomass for all reporting countries. Key changes include additional animal population categories that were missing in ESVAC, and updated animal weights used to calculate animal biomass. While ESVAC used estimated average weights at the time of treatment, ESUAvet adopted the same approach as the World Organisation for Animal Health (WOAH), using estimated average live weights. This was considered more appropriate given the inclusion of new species and categories for which treatment-time weights are not readily available. Alignment with the WOAH approach also supports future global comparisons, in line with recital (7) of Commission Implementing Regulation (EU) 2022/209.

Average animal live weights were calculated using slaughter data from Eurostat. As a result, these are higher than the estimated weights at the time of treatment, resulting in larger biomass estimates and, consequently, lower mg/kg values compared to mg/PCU[53] (Figure 41). Nonetheless, to support monitoring the progress towards the EU's sales reduction target (discussed below), the sales and animal population data submitted to the Agency for ESUAvet are also analysed using the ESVAC methodology (Section 3, Annex 6).

[53] PCU is the name of the ESVAC denominator, with 1 PCU unit equivalent to 1 kg of animal biomass.

Figure 41. Comparison of ESUAvet and ESVAC sales in 2023 and 2024



As illustrated in Figure 41, total ESUAvet sales for food-producing animals under the mandatory scope, expressed in tonnes of active substance, closely overlap with the same data reanalysed according to the ESVAC protocol. The figure shows that differences between the sales indicators — **mg/kg** for ESUAvet and **mg/PCU** for ESVAC— reflect the denominator differences described above.

Sales for food-producing animals

In 2024, EU sales of antimicrobials under the mandatory scope for **food-producing animals** represented 98.5% of all sales (in tonnes) reported under this scope, consistent with the proportion observed in 2023. The mg/kg indicator increased by 5.1% compared to 2023 — from 43.8 mg/kg to 46.1 mg/kg — mainly due to an increase in the volume of sales, while the biomass decreased slightly (-1.0%).

At country level, a wide range of values continues to be observed, from 1.8 mg/kg to 112.9 mg/kg in 2024. Compared to 2023, sales (in mg/kg) decreased in 6 countries, with reductions ranging from -1.2% to -20.3%. In 1 country sales did not change, while increases were observed in the remaining 22 countries, ranging from +0.5% to +31.7% (Table A3). Country-level changes contribute to the overall EU indicator to varying degrees, depending on the relative size of each country's sales volume and biomass.

The variation between countries can be explained, in part, by country-specific factors potentially affecting the sales of antimicrobial VMPs, such as differences in the composition of the animal population, disease incidence[54], production systems, animal husbandry practices, prescription practices, treatment guidelines, daily doses[55] and treatment duration, as well as the availability of VMPs. A more detailed understanding requires country-level context, which is partially captured in the footnotes of Table A3. These factors should be taken into account when interpreting individual country trends over time. Comparisons between countries should be made with caution, as greater value often lies in examining year-on-year changes within each country, particularly when context for observed

[54] Animal Disease Information System (ADIS) is the EU's disease management tool to register and document the evolution of the situation of important infectious animal diseases: https://food.ec.europa.eu/animals/animal-diseases/animal-disease-information-system-adis_en
[55] Available on the European Medicines Agency's website here.

trends is available. Annex 7 provides information on national AMR initiatives, which may support the interpretation of country-level data.

The overall sales increase in 2024 affects the progress that EU Member States had previously achieved towards the EU's aspirational target of reducing antimicrobial sales for farmed animals and in aquaculture (Section 3, Figure 39). These results suggest that the overall declining trend observed during ESVAC (2010–2022) may be slowing down or reversing, although more years of data will be needed to determine whether this reflects a lasting shift or a temporary fluctuation. The 2024 increase highlights that progress towards the 2030 target is not linear and may be influenced by factors such as availability of medicines (leading to stockpiling), disease outbreaks, changes in animal population, to name a few. Continued close monitoring and timely reporting will be essential to maintain momentum and support corrective actions if needed.

Antimicrobial dosing varies considerably between and within classes, across animal species and between oral and parenteral forms — sometimes by several orders of magnitude. Since the sales data in this report cover all food-producing animal species, it is not possible to account for these dosing differences. This underscores the limitations of sales data in reflecting actual exposure of animals to antimicrobials. Nonetheless, the consistent use of harmonised indicators such as the mg/kg has enabled robust trend analysis and generated important insights into antimicrobial use patterns, using sales data as a proxy.

One such pattern identified through sales data is the use of product forms predominantly used for group treatment. Product forms for group treatment — premixes, oral solutions and oral powders — have consistently accounted for the majority of sales reported by ESVAC from 2010 to 2022 and by ESUAvet since 2023, representing 86.0% of EU sales for food-producing animals in 2024. A notable shift was observed in the rise of sales of oral solutions, which have overtaken premixes as the highest-selling product form since 2017 (13th ESVAC report). While premixes have historically been more frequently used for disease prevention or metaphylaxis, oral solutions tend to be administered during acute disease stages and for shorter durations[56].

The implementation of stricter provisions under Regulation (EU) 2019/6 and Commission Delegated Regulation (EU) 2024/1159[57], particularly those limiting oral administration via feed to individual animals or a small group of animals[58], could impact sales of product forms for group treatments in the coming years. In fact, variations are already being submitted to align product information with these requirements[59]. This is particularly relevant in light of the overall increase in antimicrobial sales observed in 2024 (Figure 7), which appears to be primarily driven by higher sales of oral solutions, reinforcing the need to monitor how sales patterns of various product forms intersect with stewardship goals and implementation of regulations.

The **AMEG** classification — which groups antimicrobials into categories B (restrict), C (caution), and D (prudence) based on their importance to public health and their need in veterinary medicine — is intended as a tool to support decision-making by veterinarians on which antimicrobials to use. It also

[56] European Medicines Agency's scientific advice on the effective and safe use of VMPs authorised and prescribed for oral administration via routes other than medicated feed: https://www.ema.europa.eu/en/documents/regulatory-procedural-guideline/advice-implementing-measures-under-art-1066-reg-eu-2019-6-veterinary-medicinal-products-scientific-problem-analysis-recommendations-ensure-safe-efficient-administration-oral-veterinary-medicinal_en.pdf
[57] Commission Delegated Regulation (EU) 2024/1159 of 7 February 2024 supplementing Regulation (EU) 2019/6 of the European Parliament and of the Council by laying down rules on appropriate measures to ensure the effective and safe use of veterinary medicinal products authorised and prescribed for oral administration via routes other than medicated feed and administered by the animal keeper to food-producing animals. The European Commission considered the European Medicines Agency's scientific advice on the effective and safe use of VMPs authorised and prescribed for oral administration via routes other than medicated feed.
[58] Where intake of the VMP by individual animals can be effectively controlled.
[59] List of variations not requiring assessment introduced in January 2025: http://data.europa.eu/eli/reg_impl/2021/17/oj

provides a structured framework for EMA to monitor sales of antimicrobial VMPs in relation to the potential consequences that their use in animals may have on both public and animal health.

In 2024, the relative sales distribution of AMEG categories remained broadly consistent with those observed in 2023. AMEG category D antimicrobials accounted for 67.6% of total EU sales, followed by AMEG C at 26.4% and AMEG B — which includes substances of higher public health concern such as fluoroquinolones and 3rd- and 4th-generation cephalosporins — at 6.0%. However, country-level data reveal noticeable differences, with seven countries reporting AMEG B sales above 10% of their national sales (one more country than in 2023). While the overall low EU-wide sales of AMEG B are encouraging, higher sales in certain reporting countries highlight that further efforts to reduce such use may still be needed.

Sales for other animals kept or bred

Sales of **AMEG** categories for **other animals kept or bred** show a markedly different distribution pattern compared to food-producing animals. The EU-level proportions across AMEG categories remained consistent between 2023 and 2024, with AMEG C (caution) accounting for 71.5% of total EU sales in 2024 — mainly due to sales of penicillins in combination with beta-lactamase inhibitors, more precisely, fixed combinations of amoxicillin and clavulanic acid. AMEG D (prudence) represented 25.8% of EU sales, while AMEG B (restrict) antimicrobials accounted for 2.5%. These figures suggest that, unlike for food-producing animals for which sales of AMEG D are the most predominant, treatment practices for other animals kept or bred rely more on AMEG C antimicrobials. This pattern may be influenced by product availability: in several countries AMEG D options (e.g. mono-substance amoxicillin tablets) are limited or only available under special licence, while AMEG C options for penicillins in combination with beta-lactamase inhibitors (i.e. fixed combinations of amoxicillin and clavulanic acid) are more widely marketed.

Overall antimicrobial VMP sales for **other animals kept and bred** declined between 2023 and 2024**.** At EU level, sales expressed in mg/kg declined by 8.2%, due to a reduction in total sales volume and an increase in the estimated biomass for this animal group.

Reporting sales in mg/kg for this animal group is a recent development, made possible by the introduction of a denominator that represents the biomass of dogs, cats and fur animals. While this denominator does not cover all species for which VMPs may be authorised for (e.g. racing pigeons and companion animals other than dogs and cats), it is considered to offer a reasonable estimate of the non-food-producing animal population that could be potentially treated with these antimicrobials. This denominator provides a useful basis for normalising sales data, but several years will be needed to assess its consistency and ensure reliable interpretation of trends over time. Therefore, some caution is warranted when interpreting sales expressed in mg/kg for other animals kept or bred.

The sales volume for other animals kept or bred might be underestimated. For instance, 81.3% of the sales of antimicrobial VMPs for fur animals — which accounted for only 0.29% of the total sales reported under the mandatory scope —, can only be allocated to the sales of food-producing animals, as these products are also authorised for use in food-producing species. Similarly, injectable products are frequently marketed for both food-producing and companion animal species, and their sales are included in the statistics of food-producing animals. While the overall impact at EU level is expected to be minor in terms of the weight of the active substance, it may be more pronounced in certain countries, particularly for those countries with fur animals and no VMPs solely authorised for fur animals.

Building on the above and considering the species biomass breakdown in Figure 15 — along with the fact that 19 reporting countries did not keep or breed fur animals in 2024 — it is likely that most of the aggregated sales data for other animals kept or bred correspond to sales of antimicrobial VMPs for cats and dogs.

4.3. Use data under the mandatory scope: first insights from antimicrobial use data for cattle, pigs, chickens and turkeys

Implementation progress

In 2024, ESUAvet reporting countries continued to advance the implementation of antimicrobial use data collection by species (cattle, pigs, chickens and turkeys), building on both newly established systems and existing national efforts predating Regulation (EU) 2019/6. While many countries are still refining their national antimicrobial use data collection systems, the second year of reporting use data per species marks another step toward establishing a robust EU surveillance framework. Variability in coverage and accuracy persists across countries and species, and the identification of reporting errors, inconsistencies and incomplete coverage is itself a positive development — enabling corrections and fostering continuous improvement. The results presented in this report should be interpreted with caution, especially for those countries still in the early stages of data collection.

Despite these limitations, the 2024 use data reported by countries can offer valuable early insights, but since it is unknown whether these data are representative of EU-level use, the data are not aggregated at EU level. Only data from countries with at least a 90% coverage were analysed to prevent misleading interpretations and incorrect comparisons between animal sectors.

First insights from use data reported in 2024

Use of antimicrobial classes varied by species and between the countries with coverage ≥90%. Tetracyclines and penicillins were frequently among the top reported classes across the four species, although variations were observed at country level. Other classes — such as sulfonamides, macrolides, aminoglycosides, fluoroquinolones and polymyxins — accounted for a substantial proportion of the reported use in specific countries and species. Data on use by product form also differed by species: injectable products were most commonly used in cattle, while oral forms were more prevalent in pigs, chickens, and turkeys. These observations may indicate differences in use between species and countries but should be interpreted with caution. Stratification of use data by animal category would likely result in different patterns of use, both in terms of antimicrobial classes and product forms.

At EU level, a comparison between the total antimicrobial sales reported in 2024 (4,402.8 tonnes for all food-producing species) and the use data submitted for cattle, pigs, chickens, and turkeys (3,297.2 tonnes) highlights the substantial share these four species represent in terms of antimicrobial use in food-producing animals. While not all antimicrobials sold in a given year are necessarily used in that same year — due to factors such as stockpiling — and EU coverage at species level is not sufficiently complete, these figures already indicate that antimicrobial use in food-producing animals is largely accounted for by these four species.

Maximising the potential of use data: a call to action for reporting countries

The transition to species-level use data represents a significant step forward in understanding antimicrobial exposure in animals. Sales and use data are complementary but distinct: sales data reflect the volume of antimicrobials placed on the market and have long served as a proxy for

estimating consumption, but do not indicate the species in which a product was ultimately used when authorised for multiple species.

Having access to antimicrobial use data by species and animal categories will bridge this gap. For instance, use data can provide insights into the species or animal categories where exposure to antimicrobials is high, which may influence selection pressure for AMR, and can help target interventions to reduce use. It will also allow for recognising use of VMPs outside the terms of the marketing authorisation according to Articles 112–114 of Regulation (EU) 2019/6 — such as treatments with medicinal products not authorised for the target species in question. Moreover, it enables the use of more refined indicators — such as defined daily doses (DDDvet) and defined course doses (DCDvet). These indicators provide a more accurate measure of antimicrobial exposure and should be included in future analyses as data quality and coverage improve. Data from countries with high coverage may be well-positioned to be included in DDDvet-based analyses in future ESUAvet reports.

To unlock the potential of use data, countries must continue working to fully meet their legal obligations under Regulation (EU) 2019/6 by achieving complete and accurate reporting of antimicrobial use data for all four food-producing species — cattle, pigs, chickens and turkeys — and their respective animal categories. In parallel, coordinated efforts at EU level are needed to support countries in harmonising the methodology for assessing key parameters, such as coverage and accuracy, which are essential for ensuring robust and comparable use data across the EU.

5. Concluding remarks

This second ESUAvet report builds on the foundations laid in the first report, providing a more integrated and comprehensive overview of sales and use data reported by countries under the mandatory scope. Sales data continue to serve as a reliable proxy for estimating antimicrobial consumption in food-producing animals in the EU, which accommodates the need for a longer period to improve the quality and reliability of antimicrobial use data by species.

The availability of more granular use data is expected to improve year by year, creating opportunities to better understand consumption patterns and guide targeted interventions. However, variability in reporting approaches and gaps in data coverage continue to limit the full potential of these data. Nonetheless, the timely submission of data by most reporting countries, despite implementation and timeline challenges, demonstrates their commitment to fulfilling legal obligations. As countries continue to collect and report data under the EU regulatory framework, efforts to improve data quality, coverage, and timeliness remain essential.

The data presented in this report have the potential to inform targeted interventions, shape strategies, and foster accountability across reporting countries. Ultimately, the findings should serve not only as a reflection of the current state of antimicrobial consumption in animals in the EU but as a call to action — to build on progress, address remaining challenges, and work collectively towards consistent and complete reporting under the ESUAvet framework. The next ESUAvet report is scheduled for publication by December 2026, in line with legal obligations under the EU regulatory framework.

Annexes

Annex 1. Additional figures and tables

Annex 1.1. Supplementary information for 2024 sales data

Table A1. Data providers and coverage of the data on the volume of sales of antimicrobial VMPs reported by countries to the Agency for 2024

Country	Type of data provider(s)[1]	Coverage reported by countries[2]
Austria	MAH, wholesalers	100%
Belgium[a]	MAH, feed mills	100%
Bulgaria	MAH	100%
Croatia	MAH, wholesalers	>90%
Cyprus	Wholesalers, feed mills	100%
Czechia	Wholesalers, feed mills	100%
Denmark	Pharmacies	100%
Estonia	Wholesalers	100%
Finland	Wholesalers	100%
France	MAH	100%
Germany	MAH, wholesalers	100%
Greece	MAH and local representatives	>95%
Hungary	Wholesalers	100%
Iceland	Wholesalers	100%
Ireland[b]	MAH	100%
Italy	Retailers, feed mills, pharmacies	100%
Latvia	Wholesalers	100%
Lithuania	Wholesalers	100%
Luxembourg[c]	Wholesalers	100%
Malta[d]	Wholesalers, feed mills	Incomplete
Netherlands[e]	MAH	98%
Norway	Wholesalers, feed mills	100%
Poland	Wholesalers	100%
Portugal[f]	MAH, wholesalers	99%
Romania	MAH	100%
Slovakia[g]	Wholesalers	100%
Slovenia	Wholesalers	100%
Spain	MAH	100%
Sweden[h]	Pharmacies, veterinarians	>99%

[1] As per Article 11(1) of Commission Delegated Regulation (EU) 2021/578.
[2] In addition to reporting the volume of sales of antimicrobial VMPs, countries also have to submit additional information via the sales questionnaire to fulfil the requirements of Article 12(3) of Commission Delegated Regulation (EU) 2021/578, summarised in this table.
[a)] In Belgium, the coverage presented concerns sales made in the country and not of sales bought in other Member States. The proportion of sales bought in other Member States is currently unknown. A project to collect sales data at the lowest level in the chain to address this gap is underway, with the first purchase data in other Member States expected in 2028.
[b)] In Ireland, sales of antimicrobials to other Member States, subsequent to their release to the IE market, were not excluded as this information is not available.

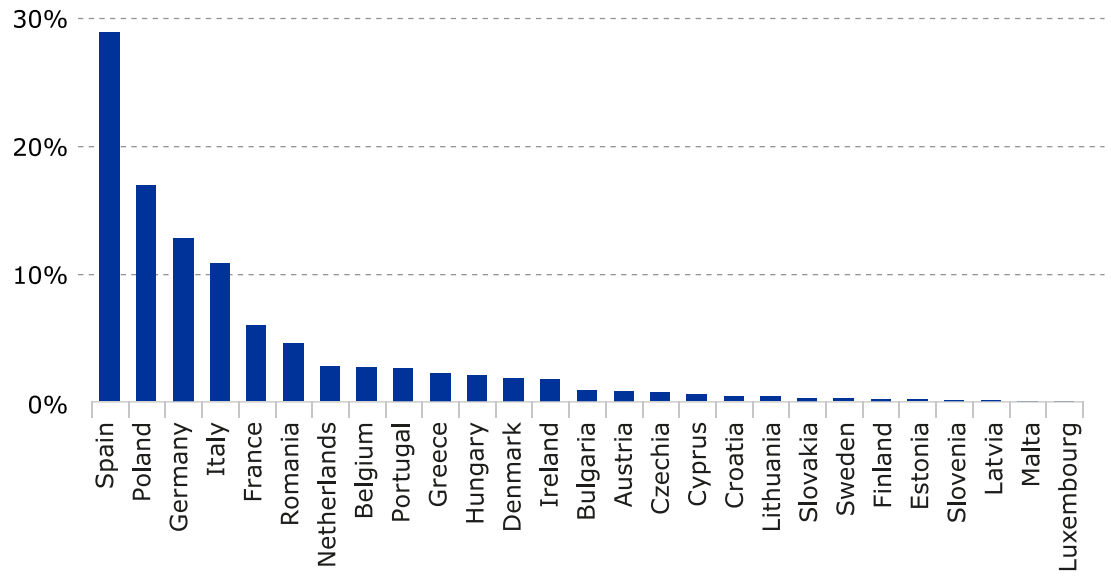
[c)] In Luxembourg, the coverage presented concerns sales made in the country and not of sales bought in other Member States. The proportion of sales bought in other Member States is currently unknown.
[d)] In Malta, veterinarians occasionally supply VMPs without the veterinary prescription when they administer the product themselves and/or give small amounts of VMPs to start the treatment. However, the veterinarian is not exempt from the record keeping requirements and since 10 February 2025 veterinarians must always issue a veterinary prescription when they administer antimicrobials VMPs.
[e)] In the Netherlands, the import of antimicrobial VMPs by wholesalers due to shortages are not collected by MAH and have a minor impact on the coverage of sales reported (approximately 2%).
[f)] In Portugal, medicated feed bought in other Member States is not captured in reported sales. The sales coverage reported in 2024 is similar to that of previous reporting periods.
[g)] In Slovakia, sales of antimicrobials to other Member States, subsequent to their release to the SK market, were not excluded as this information is not available.
[h)] In Sweden, handout by veterinarians of VMPs bought in neighbouring countries, for use at the farm for specific animals in connection with a visit, are not captured as sales, but is to be reported as use to the Swedish Board of Agriculture.

Table A2. Estimated animal biomass (1,000 tonnes) of food-producing animals and other animals kept or bred per country in 2024

Country	Cattle	Pigs	Chickens	Turkeys	Other poultry	Sheep	Goats	Finfish	Horses	Rabbits	Total food-producing animals	Dogs	Cats	Fur animals	Total other animals kept or bred
Austria	863.8	554.7	232.2	22.3	1.4	37.6	7.8	2.5	44.2	<0.001	1766.3	16.7	10.1	0	26.8
Belgium	1087.1	1260.4	739.2	13.8	0.12	16.7	7.4	0	120.5	4.3	3249.7	41.0	15.4	0	56.4
Bulgaria	283.2	175.3	146.3	0.08	30.0	77.8	9.8	10.3	11.5	<0.01	744.2	14.6	4.0	0.31	18.9
Croatia	122.2	146.8	108.4	11.6	0.23	45.4	4.7	21.0	14.6	<0.01	474.8	14.2	2.1	0	16.3
Cyprus	51.9	64.9	35.0	0.2	0	25.3	13.5	8.1	1.8	0.12	200.7	3.6	0.3	0	3.9
Czechia	797.9	318.5	323.0	10.8	16.4	14.1	1.8	16.5	43.0	9.2	1551.2	44.6	7.0	0	51.6
Denmark	679.6	2412.9	312.8	5.7	0.19	12.1	0.73	33.9	73.8	0	3531.8	12.3	3.3	0.10	15.8
Estonia	149.8	67.6	35.1	<0.01	<0.01	3.7	0.21	0.83	3.7	<0.01	261.0	5.0	1.5	0	6.5
Finland	356.5	228.6	200.7	11.4	0	9.8	0.35	14.4	27.7	0	849.5	15.9	5.0	3.0	23.9
France	8891.9	2862.5	2155.7	392.8	242.7	593.2	100.0	38.5	354.6	34.6	15666.4	198.0	83.0	0	281.0
Germany	5383.0	5362.2	2101.4	327.1	46.6	135.3	11.4	11.7	520.0	0.53	13899.2	210.0	78.5	0	288.5
Greece	292.6	147.5	430.6	6.0	0.04	1061.4	279.5	131.0	3.8	1.7	2354.1	13.0	3.0	6.2	22.2
Hungary	399.7	595.0	452.0	83.7	141.3	73.9	2.1	18.5	16.0	5.0	1787.2	55.4	11.8	0	67.2
Ireland	3140.6	475.9	245.2	22.0	9.3	335.9	0.53	14.7	100.0	0	4344.1	10.3	1.9	0	12.2
Italy	2065.3	1280.1	1416.5	316.3	5.1	429.3	61.6	43.7	198.8	27.4	5844.0	175.3	51.2	0	226.5
Latvia	199.6	53.1	62.0	0.02	<0.01	5.8	0.61	0.50	3.7	<0.01	325.3	5.4	2.1	0.36	7.8
Lithuania	317.0	117.3	152.9	5.9	<0.01	9.5	0.87	2.6	5.2	0.08	611.3	6.3	0.8	1.0	8.1
Luxembourg	108.2	16.1	1.4	0	0	0.77	0.32	0	1.7	0	128.6	0.92	0.52	0	1.4
Malta	9.9	6.0	8.3	0	0	1.2	0.46	2.2	2.9	0.09	31.1	2.0	0.13	0	2.2
Netherlands	1757.5	2167.1	709.4	15.6	15.6	56.5	40.0	0	40.9	0.53	4803.0	35.5	15.0	0	50.5
Poland	3130.8	2313.0	3195.1	523.2	186.4	22.9	4.5	36.2	101.9	2.3	9516.2	168.8	37.7	24.2	230.7
Portugal	768.0	604.6	578.4	52.3	18.6	174.7	21.8	4.8	36.8	5.4	2265.5	60.2	10.4	0	70.5
Romania	1223.3	435.6	1447.5	29.8	0.79	898.2	90.4	6.7	68.3	<0.01	4200.6	85.0	22.2	1.7	108.9
Slovakia	258.1	89.1	116.2	4.1	0.30	23.3	1.1	0.82	7.0	<0.01	500.1	28.8	0.31	0	29.1

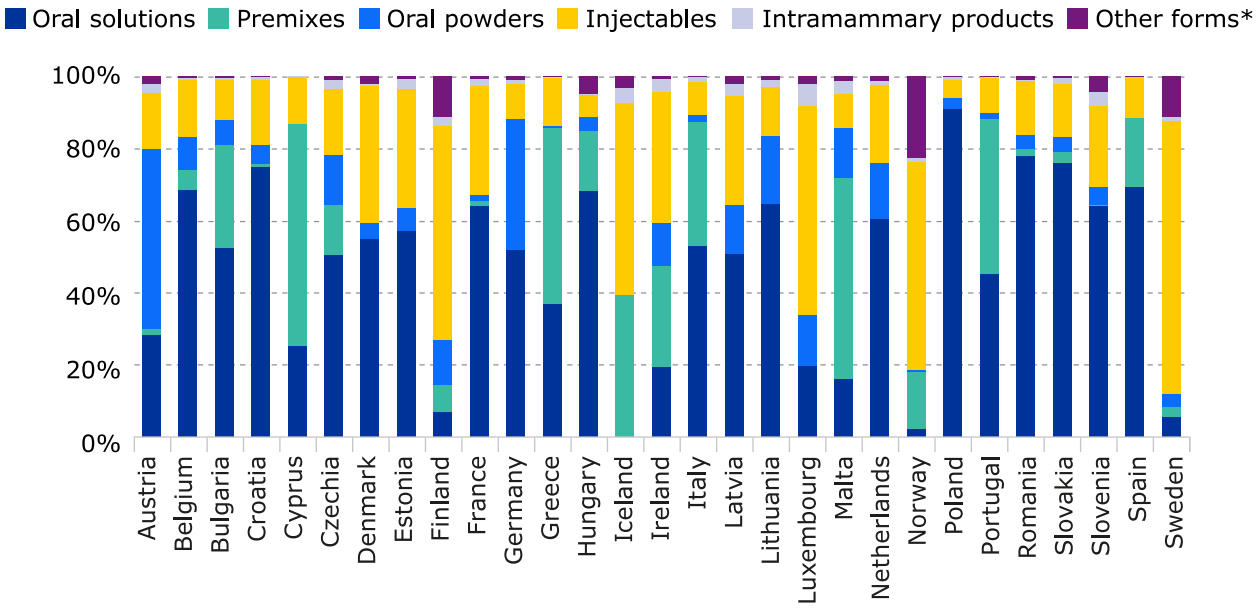
Country	Cattle	Pigs	Chickens	Turkeys	Other poultry	Sheep	Goats	Finfish	Horses	Rabbits	Total food-producing animals	Dogs	Cats	Fur animals	Total other animals kept or bred
Slovenia	221.2	30.2	107.9	6.3	0	8.9	1.7	0.71	11.5	0.04	388.4	6.0	2.3	0	8.3
Spain	2335.1	7003.4	1957.3	359.1	4.2	1219.5	177.2	52.4	256.7	54.7	13419.7	189.3	29.8	2.9	222.0
Sweden	624.9	335.7	275.1	6.1	0.19	28.6	1.3	8.5	142.2	0	1422.6	21.2	8.7	0.15	30.0
EU	**35518**	**29124**	**17546**	**2226**	**720**	**5321**	**842**	**481**	**2213**	**146**	**94137**	**1440**	**408**	**40**	**1887**
Iceland	38.3	10.0	14.3	0.77	0	37.6	0.12	49.5	28.0	0	178.5	0.52	0.19	0.02	0.72
Norway	460.4	199.1	184.2	11.5	1.5	93.8	5.6	1648.8	31.4	0	2636.2	10.0	3.6	0	13.6
EU, IS, NO	**36017**	**29333**	**17744**	**2238**	**721**	**5453**	**847**	**2179**	**2272**	**146**	**96951**	**1450**	**412**	**40**	**1902**

Figure A1. Member States relative proportion of EU sales of antimicrobial VMPs (tonnes) for food-producing animals in 2024[1]



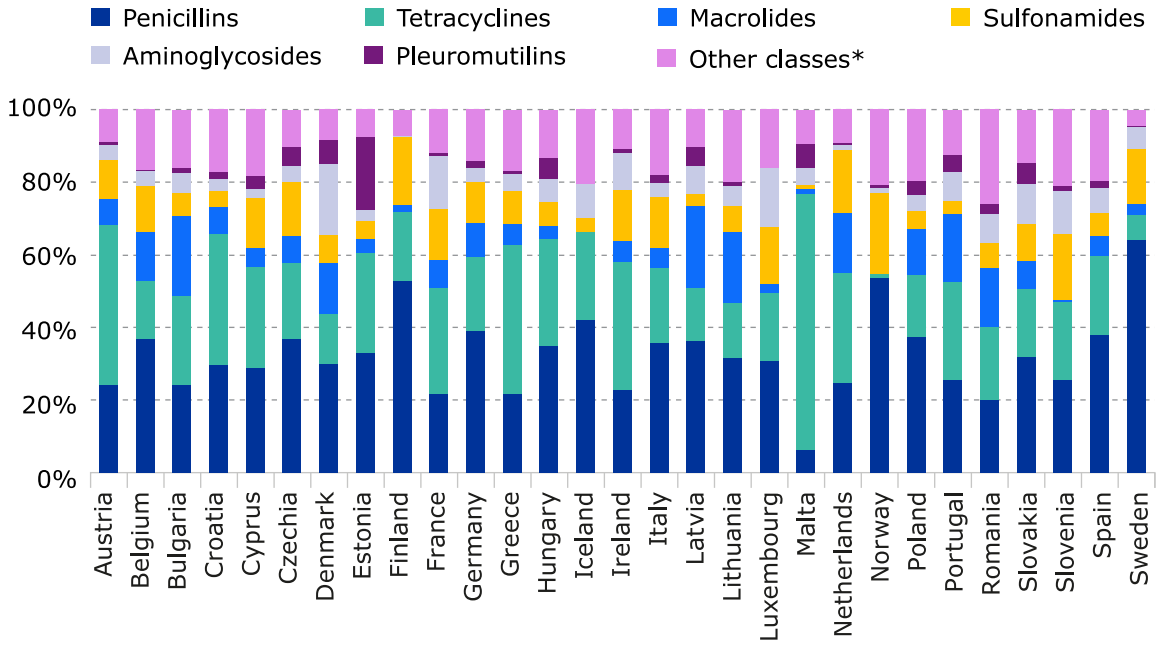
[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.

Figure A2. Proportion of sales of antimicrobial VMPs (mg/kg) for food-producing animals by product form per country in 2024[1]



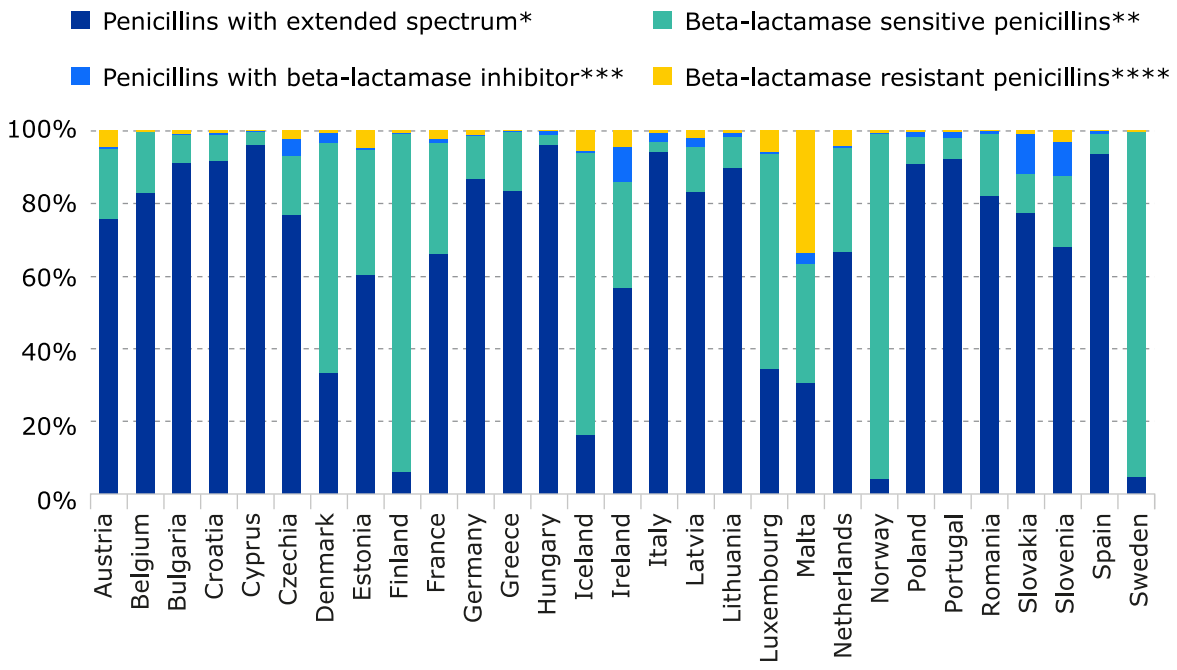
[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
* 'Other forms' includes oral pastes, tablets and intrauterine products.

Figure A3. Proportion of sales of antimicrobial VMPs (mg/kg) for food-producing animals by antimicrobial class per country in 2024[1]



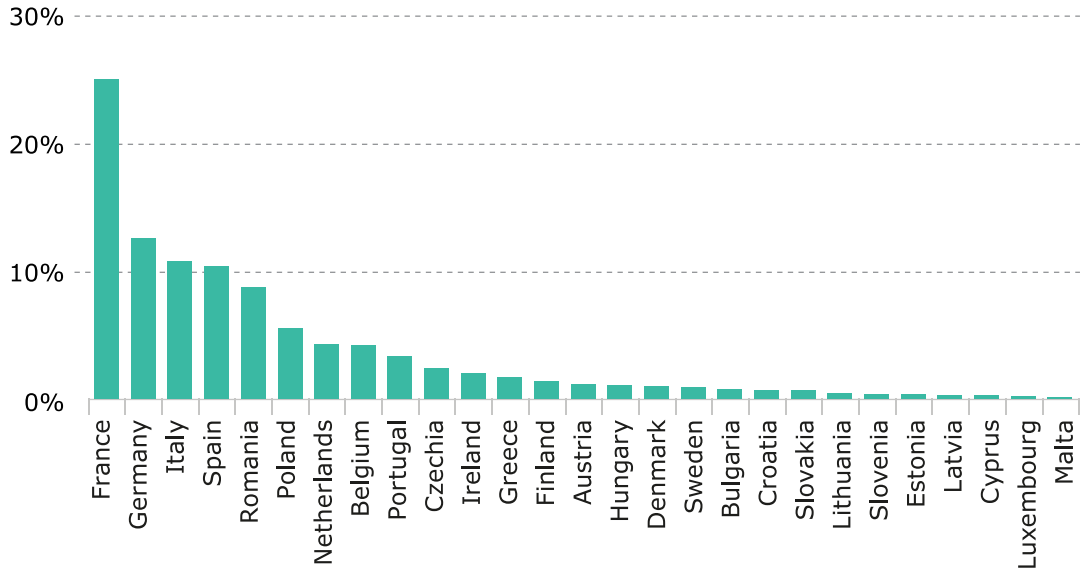
[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
* 'Other classes' includes amphenicols, cephalosporins, fluoroquinolones, lincosamides, other antibacterials, other quinolones, polymyxins and trimethoprim.

Figure A4. Proportion of sales of penicillin (mg/kg) by subclass for food-producing animals per country in 2024[1]



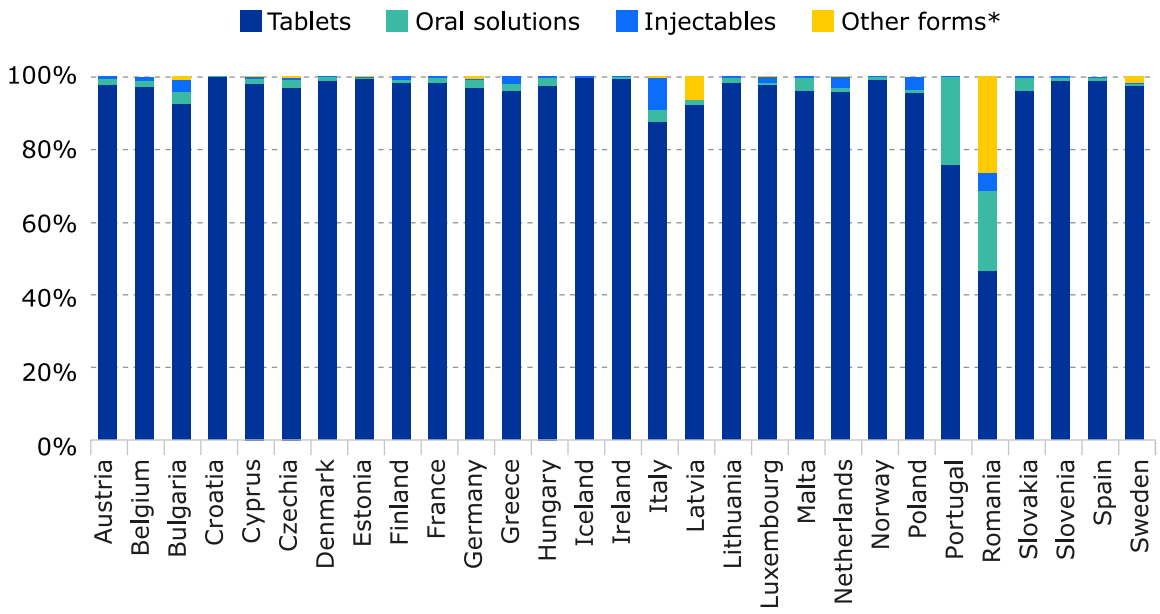
[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
* Penicillins with extended spectrum included only aminopenicillins (amoxicillin and ampicillin), with amoxicillin accounting for more than 87% of sales in this subclass.
** Beta-lactamase-sensitive penicillins included only benzylpenicillin and phenoxymethylpenicillin, with benzylpenicillin representing more than 80% of this subclass sales.
*** Only combinations of amoxicillin with enzyme inhibitors were reported.
**** Beta-lactamase-resistance penicillins included cloxacillin, dicloxacillin and nafcillin, with cloxacillin accounting for more than 87% of sales in this subclass.

Figure A5. Member States relative proportion of EU sales of antimicrobial VMPs (tonnes) for other animals kept or bred in 2024[1]



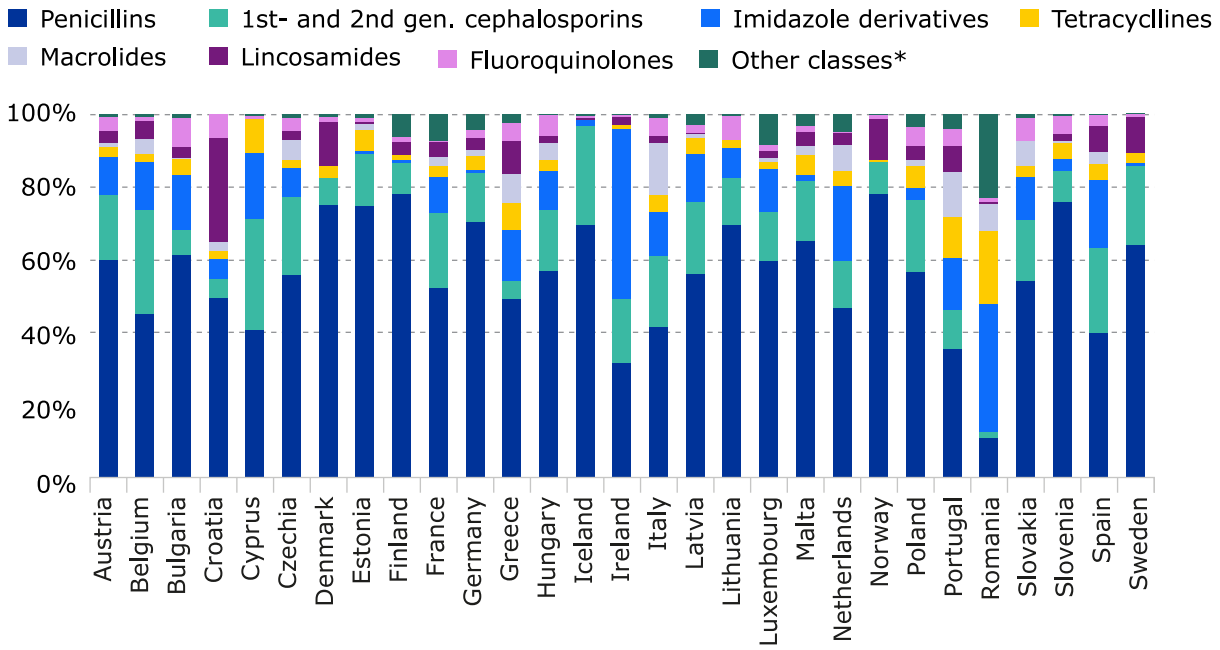
[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.

Figure A6. Proportion of sales of antimicrobial VMPs (mg/kg) for other animals kept or bred by product form per country in 2024[1]



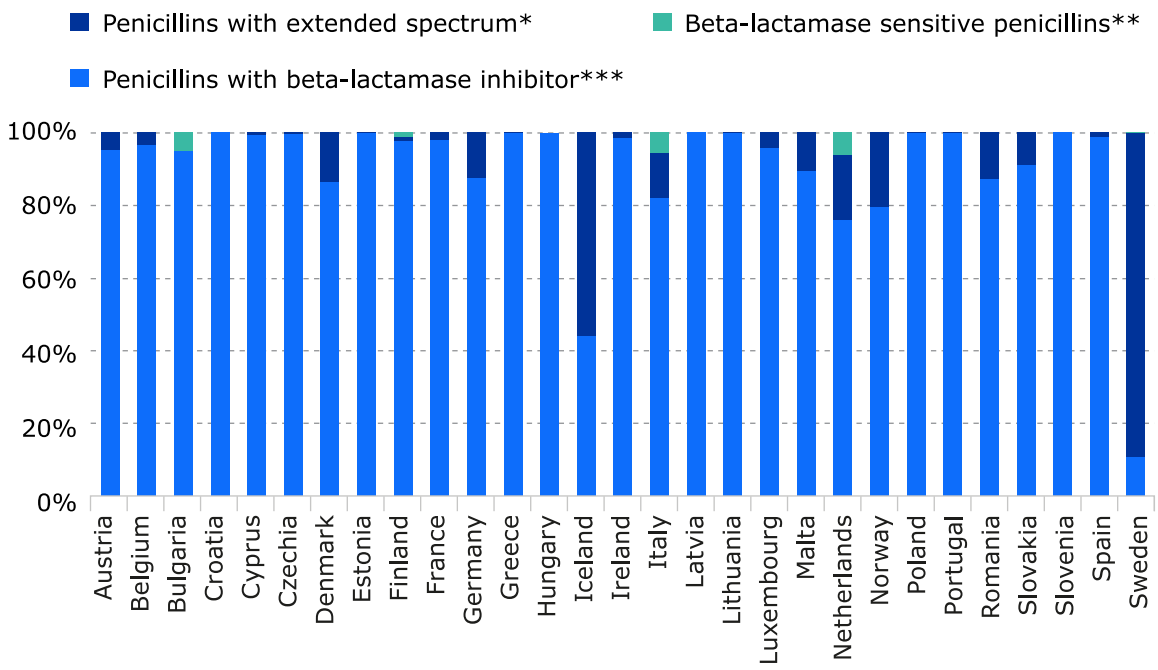
[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
* 'Other forms' includes oral pastes, oral powders and premixes.

Figure A7. Proportion of sales of antimicrobial VMPs (mg/kg) for other animals kept or bred by antimicrobial class per country in 2024[1]



[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
* 'Other classes' includes 3rd- and 4th-generation cephalosporins, aminoglycosides, amphenicols, pleuromutilins, polymyxins, trimethoprim, sulfonamides, other antibacterials, other quinolones, nitrofuran derivatives, and antiprotozoals.

Figure A8. Proportion of sales of penicillins (mg/kg) by subclass for other animals kept or bred per country in 2024[1]



[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
* Penicillins with extended spectrum included only aminopenicillins (amoxicillin, ampicillin).
** Beta-lactamase sensitive penicillins included only benzylpenicillin.
*** Only fixed combinations of amoxicillin with enzyme inhibitors (clavulanic acid) were reported (Table A8).

Annex 1.2. Supplementary sales data per country – all reporting years

Tables A3 and A4 summarises the biomass and antimicrobial VMP sales for food-producing animals and other animals kept or bred, respectively, per country and per year. The tables are supplemented with country notes, provided with the submission of 2024 data.

Table A3. Total sales of antimicrobial VMPs for food-producing animals (mg/kg), with separate figures for sales of 3rd- and 4th-generation cephalosporins, quinolones and polymyxins, and food-producing biomass (thousand tonnes) per country by year[1,2]

Country	Parameter	2023	2024	Change (%) previous year
Austria[a]	**Total sales**	**19.0**	**20.1**	**+5.8%**
	3rd-, 4th-gen. cephalosporins	0.11	0.09	↓
	Quinolones (% FQ)	0.26 (100%)	0.22 (100%)	↓
	Polymyxins	0.55	0.53	↓
	Biomass	1767.1	1766.3	-0.05%
Belgium[b]	**Total sales**	**30.9**	**35.1**	**+13.6%**
	3rd-, 4th-gen. cephalosporins	0.03	0.03	≈
	Quinolones (% FQ)	0.29 (36%)	0.24 (35%)	↓
	Polymyxins	0.45	0.43	↓
	Biomass	3228.8	3249.7	+0.6%
Bulgaria[c]	**Total sales**	**49.3**	**51.9**	**+5.1%**
	3rd-, 4th-gen. cephalosporins	0.04	0.12	↑
	Quinolones (% FQ)	3.5 (100%)	3.1 (99%)	↓
	Polymyxins	3.3	2.7	↓
	Biomass	741.8	744.2	+0.3%
Croatia[d]	**Total sales**	**26.9**	**35.4**	**+31.7%**
	3rd-, 4th-gen. cephalosporins	0.46	0.29	↓
	Quinolones (% FQ)	1.4 (100%)	1.1 (100%)	↓
	Polymyxins	1.7	3.1	↑
	Biomass	476.1	474.8	-0.3%
Cyprus[e]	**Total sales**	**112.9**	**112.9**	**0%**
	3rd-, 4th-gen. cephalosporins	0.34	0.43	↑
	Quinolones (% FQ)	1.3 (100%)	1.5 (100%)	↑
	Polymyxins	3.2	2.2	↓
	Biomass	203.0	200.7	-1.1%
Czechia[f]	**Total sales**	**19.0**	**19.1**	**+0.5%**
	3rd-, 4th-gen. cephalosporins	0.19	0.20	↑
	Quinolones (% FQ)	0.76 (100%)	0.71 (100%)	↓
	Polymyxins	0.24	0.19	↓
	Biomass	1514.9	1551.2	+2.4%
Denmark[g]	**Total sales**	**20.1**	**22.2**	**+10.5%**
	3rd-, 4th-gen. cephalosporins	<0.001	0	↓
	Quinolones (% FQ)	0.06 (2%)	0.05 (2%)	↓
	Polymyxins	0	0	n.a.
	Biomass	3511.4	3531.8	+0.6%

Country	Parameter	2023	2024	Change (%) previous year
Estonia[h]	**Total sales**	**20.0**	**18.8**	**-5.9%**
	3rd-, 4th-gen. cephalosporins	0.15	0.16	↑
	Quinolones (% FQ)	0.29 (100%)	0.29 (100%)	≈
	Polymyxins	0.15	0.13	↓
	Biomass	260.5	261.0	+0.2%
Finland[i]	**Total sales**	**8.7**	**8.6**	**-1.2%**
	3rd-, 4th-gen. cephalosporins	0	0	n.a.
	Quinolones (% FQ)	0.05 (100%)	0.05 (100%)	≈
	Polymyxins	0	0	n.a.
	Biomass	865.1	849.5	-1.8%
France	**Total sales**	**16.2**	**16.3**	**+0.6%**
	3rd-, 4th-gen. cephalosporins	<0.01	<0.01	≈
	Quinolones (% FQ)	0.14 (30%)	0.13 (34%)	↓
	Polymyxins	0.49	0.44	↓
	Biomass	15639.0	15666.4	+0.2%
Germany[j]	**Total sales**	**37.4**	**39.8**	**+6.4%**
	3rd-, 4th-gen. cephalosporins	0.06	0.06	≈
	Quinolones (% FQ)	0.35 (100%)	0.37 (100%)	↑
	Polymyxins	2.4	2.2	↓
	Biomass	13892.9	13899.2	+0.04%
Greece[k]	**Total sales**	**37.8**	**41.0**	**+8.5%**
	3rd-, 4th-gen. cephalosporins	0.10	0.11	↑
	Quinolones (% FQ)	2.0 (61%)	4.0 (32%)	↑
	Polymyxins	0.68	0.95	↑
	Biomass	2311.0	2354.1	+1.9%
Hungary	**Total sales**	**45.7**	**49.6**	**+8.6%**
	3rd-, 4th-gen. cephalosporins	0.16	0.15	↓
	Quinolones (% FQ)	2.3 (100%)	2.5 (100%)	↑
	Polymyxins	1.2	0.90	↓
	Biomass	1721.6	1787.2	+3.8%
Ireland[l]	**Total sales**	**16.7**	**17.2**	**+2.9%**
	3rd-, 4th-gen. cephalosporins	0.03	0.04	↑
	Quinolones (% FQ)	0.11 (100%)	0.14 (100%)	↑
	Polymyxins	0	0	n.a.
	Biomass	4448.3	4344.1	-2.3%
Italy[m]	**Total sales**	**81.5**	**79.9**	**-2.0%**
	3rd-, 4th-gen. cephalosporins	0.04	0.02	↓
	Quinolones (% FQ)	0.71 (62%)	0.51 (65%)	↓
	Polymyxins	0.33	0.35	↑
	Biomass	6218.2	5844.0	-6.0%

Country	Parameter	2023	2024	Change (%) previous year
Latvia	**Total sales**	**10.2**	**12.8**	**+26.0%**
	3rd-, 4th-gen. cephalosporins	0.16	0.18	↑
	Quinolones (% FQ)	0.43 (100%)	0.60 (100%)	↑
	Polymyxins	0.11	0.20	↑
	Biomass	344.5	325.3	-5.6%
Lithuania[n]	**Total sales**	**21.4**	**26.6**	**+24.2%**
	3rd-, 4th-gen. cephalosporins	0.17	0.20	↑
	Quinolones (% FQ)	0.70 (100%)	1.14 (100%)	↑
	Polymyxins	2.9	2.9	≈
	Biomass	607.6	611.3	+0.6%
Luxembourg[o]	**Total sales**	**10.0**	**8.2**	**-17.6%**
	3rd-, 4th-gen. cephalosporins	0.18	0.12	↓
	Quinolones (% FQ)	0.31 (100%)	0.13 (100%)	↓
	Polymyxins	0.06	0.04	↓
	Biomass	129.2	128.6	-0.4%
Malta	**Total sales**	**41.2**	**40.4**	**-2.0%**
	3rd-, 4th-gen. cephalosporins	0.10	0.10	≈
	Quinolones (% FQ)	3.0 (100%)	1.7 (100%)	↓
	Polymyxins	0.60	0.20	↓
	Biomass	27.5	31.1	+13.0%
Netherlands	**Total sales**	**22.0**	**24.5**	**+11.2%**
	3rd-, 4th-gen. cephalosporins	<0.001	<0.001	≈
	Quinolones (% FQ)	0.45 (5%)	0.39 (6%)	↓
	Polymyxins	0.16	0.14	↓
	Biomass	5137.0	4803.0	-6.5%
Poland[p]	**Total sales**	**68.8**	**76.9**	**+11.8%**
	3rd-, 4th-gen. cephalosporins	0.17	0.22	↑
	Quinolones (% FQ)	3.7 (100%)	5.6 (100%)	↑
	Polymyxins	4.1	5.0	↑
	Biomass	10007.6	9516.2	-4.9%
Portugal	**Total sales**	**62.2**	**49.6**	**-20.3%**
	3rd-, 4th-gen. cephalosporins	0.05	0.12	↑
	Quinolones (% FQ)	1.0 (100%)	1.1 (100%)	↑
	Polymyxins	0.43	0.25	↓
	Biomass	2245.3	2265.5	+0.9%
Romania	**Total sales**	**42.0**	**46.5**	**+10.9%**
	3rd-, 4th-gen. cephalosporins	0.07	0.10	↑
	Quinolones (% FQ)	4.4 (99%)	4.9 (100%)	↑
	Polymyxins	2.7	1.9	↓
	Biomass	4088.6	4200.6	+2.7%

Country	Parameter	2023	2024	Change (%) previous year
Slovakia	**Total sales**	**19.5**	**22.3**	**+14.3%**
	3rd-, 4th-gen. cephalosporins	0.15	0.18	↑
	Quinolones (% FQ)	1.2 (99%)	1.5 (100%)	↑
	Polymyxins	0.62	0.64	↑
	Biomass	496.2	500.1	+0.8%
Slovenia[q]	**Total sales**	**11.1**	**11.7**	**+5.5%**
	3rd-, 4th-gen. cephalosporins	0.10	0.10	≈
	Quinolones (% FQ)	0.41 (100%)	0.40 (100%)	↓
	Polymyxins	0.03	0.02	↓
	Biomass	386.9	388.4	+0.4%
Spain[r]	**Total sales**	**87.9**	**93.1**	**+5.9%**
	3rd-, 4th-gen. cephalosporins	0.13	0.35	↑
	Quinolones (% FQ)	1.6 (98%)	1.8 (97%)	↑
	Polymyxins	0.46	0.51	↑
	Biomass	13363.8	13419.7	+0.4%
Sweden[s]	**Total sales**	**6.0**	**6.1**	**+2.2%**
	3rd-, 4th-gen. cephalosporins	<0.001	<0.001	≈
	Quinolones (% FQ)	<0.01 (100%)	0.01 (81%)	≈
	Polymyxins	<0.01	<0.01	≈
	Biomass	1439.4	1422.6	-1.2%
EU	**Total sales**	**43.8**	**46.1**	**+5.1%**
	3rd-, 4th-gen. cephalosporins	0.07	0.11	↑
	Quinolones (% FQ)	1.2 (92%)	1.4 (91%)	↑
	Polymyxins	1.2	1.2	≈
	Biomass	95073.5	94136.7	-1.0%
Iceland[t]	**Total sales**	**3.5**	**4.4**	**+23.5%**
	3rd-, 4th-gen. cephalosporins	0	0	n.a.
	Quinolones (% FQ)	<0.01 (100%)	<0.01 (100%)	≈
	Polymyxins	0	0	n.a.
	Biomass	174.2	178.5	+2.5
Norway	**Total sales**	**1.8**	**1.8**	**0%**
	3rd-, 4th-gen. cephalosporins	<0.001	0	↓
	Quinolones (% FQ)	0.02 (18%)	<0.01 (49%)	↓
	Polymyxins	0	0	n.a.
	Biomass	2626.6	2636.2	+0.4%
EU, IS, NO	**Total sales**	**42.6**	**44.8**	**+5.1%**
	3rd-, 4th-gen. cephalosporins	0.07	0.11	↑
	Quinolones (% FQ)	1.1 (92%)	1.4 (91%)	↑
	Polymyxins	1.2	1.2	≈
	Biomass	97874.2	96951.4	-0.9%

[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Differences between the two years considered negligible and as equivalent are indicated with (≈). The arrows indicate increase (up) or decrease (down) in sales between the two years. No statistical significance analysis was performed.
[a)] Austria: the slight increase in sales in 2024 follows a record low and reflects normal annual fluctuations.

[b)] Belgium: the sales increase in 2024 could be linked to production of poultry with higher slaughter weight.
[c)] Bulgaria: new products were reported for the first time in 2024. The implementation of the data reporting electronic systems and regulatory obligations led to more complete and realistic sales data reporting.
[d)] Croatia: sales were underreported in 2023 and 2024. The increase in 2024 partly reflects more complete reporting.
[e)] Cyprus: a CAP-funded intervention launched in 2023 supports pig farmers in reducing antimicrobial use through improved biosecurity and disease prevention. The program is expected to contribute to lower sales in 2024 and beyond.
[f)] Czechia: in previous years, Czechia noted significant reduction in sales, and relatively stable figures for 2023 and 2024. Phasing out of ZnO in pig farming could have an impact on the sales of aminoglycosides.
[g)] Denmark: the increase in sales is assumed to reflect an increased need for treatment in food-producing animals.
[h)] Estonia: since 2021, the use of antimicrobials is regulated with strong recommendations to avoid 3rd- and 4th-generation cephalosporins for the treatment of food-producing animals, and antimicrobial sensitivity testing prior to use is mandatory.
[i)] Finland: the changes in total sales between 2023 to 2024 reflect normal annual variations.
[j)] Germany: no further metadata is collected, therefore no specific reasons for the slight increase in sales in 2024 can be given. However, in addition to the normal annual fluctuations, a modest rise in pig and chicken numbers, expanded reporting obligations under the amended Veterinary Medicines Act, and stockpiling due to drug shortages could be possible factors.
[k)] Greece: sales were underreported in 2023. The increase in 2024 partly reflects more complete reporting.
[l)] Ireland: the changes observed in sales from 2023 to 2024 reflect normal annual fluctuations.
[m)] Italy: the 2024 results reflect improved data accuracy and the national efforts to promote prudent and responsible use of antimicrobials in food-producing animals, supported by electronic prescriptions, national guidelines, and integrated digital systems for surveillance and stewardship.
[n)] Lithuania: fluctuations in sales volumes were mainly influenced by temporary market availability of certain antimicrobials and sector-specific health challenges. In 2024, increased sales were linked to *Mycoplasma* and *Clostridium* outbreaks (mainly in poultry farms), due to a temporary shortage of vaccines which limited prevention options. A concurrent shortage of import chicks from Poland, caused by Newcastle disease outbreaks, let to the rearing of weaker animals with a higher risk of developing illness. These conditions have since stabilised and use has decreased accordingly.
[o)] Luxembourg: the 2024 sales decrease may reflect the impact of the national action plan and new reporting legislation, which may have encouraged more targeted ordering practices (e.g. less stockpiling).
[p)] Poland: the 2024 sales increase, mainly in oral solutions, is linked to increased poultry production.
[q)] Slovenia: due to the small market size and dominance of a few large agri-businesses, annual sales fluctuations often reflect changes in health status management within these corporations.
[r)] Spain: automation and API-based reporting continued to improve data quality and completeness, reducing errors and enabling more precise tracking of antimicrobial sales and use. Differences between 2023 and 2024 sales were confirmed by MAHs and linked to product substitutions, changing feed medication practices, temporary supply interruptions, and new authorisations. Some fluctuations reflect changes in dosage forms and commercial decisions.
[s)] Sweden: Compared to earlier years, sales of aminoglycosides increased notably in 2022 and 2023, followed by a modest decrease in 2024. This is explained by an increased use of aminoglycosides for treatment of post-weaning diarrhoea following the withdrawal of veterinary medicinal products with high levels of zinc oxide in 2022. See also Swedres-Svarm 2024 comments on data by animal species: https://www.sva.se/en/what-we-do/antibiotics/swedres-svarm-reports/
[t)] Iceland: the 2024 sales increase is mainly due to antibiotic use against atypical furunculosis in farmed Arctic char. Excluding this indication, overall sales remain stable.

Table A4. Total sales of antimicrobial VMPs for other animals kept or bred (in mg/kg), with separate sales figures by AMEG category, and biomass of other animals kept or bred (thousand tonnes) per country by year[1,2,3]

Country	Parameter	2023	2024	Change (%) previous year
Austria[a]	**Total sales**	**22.2**	**27.7**	**+24.9%**
	AMEG D	1.5	4.5	↑
	AMEG C	19.1	22.0	↑
	AMEG B	1.5	1.3	↓
	Biomass	25.6	26.8	+4.9%
Belgium	**Total sales**	**49.8**	**47.9**	**-4.0%**
	AMEG D	9.8	8.4	↓
	AMEG C	39.1	38.8	↓
	AMEG B	0.92	0.66	↓
	Biomass	53.3	56.4	+6.0%
Bulgaria[b]	**Total sales**	**15.0**	**24.2**	**+61.3%**
	AMEG D	3.8	5.6	↑
	AMEG C	9.4	16.6	↑
	AMEG B	1.8	1.9	↑
	Biomass	19.4	18.9	-2.8%
Croatia[c]	**Total sales**	**22.5**	**27.2**	**+21.2%**
	AMEG D	2.2	2.1	↓
	AMEG C	18.4	23.4	↑
	AMEG B	1.9	1.7	↓
	Biomass	12.3	16.3	+32.9%
Cyprus	**Total sales**	**45.6**	**49.1**	**+7.6%**
	AMEG D	7.6	13.6	↑
	AMEG C	37.4	34.8	↓
	AMEG B	0.62	0.67	↑
	Biomass	3.7	3.9	+4.0%
Czechia	**Total sales**	**31.8**	**30.5**	**-4.2%**
	AMEG D	2.2	3.1	↑
	AMEG C	28.3	26.3	↓
	AMEG B	1.3	1.2	↓
	Biomass	51.0	51.6	+1.0%
Denmark	**Total sales**	**39.1**	**39.4**	**+0.8%**
	AMEG D	5.4	5.5	↑
	AMEG C	33.0	33.2	↑
	AMEG B	0.68	0.69	↑
	Biomass	15.7	15.8	+0.6%
Estonia	**Total sales**	**36.2**	**32.0**	**-11.7%**
	AMEG D	3.3	2.4	↓
	AMEG C	32.4	29.2	↓
	AMEG B	0.47	0.43	↓
	Biomass	6.2	6.5	+6.3%

Country	Parameter	2023	2024	Change (%) previous year
Finland[d]	**Total sales**	**36.0**	**36.8**	**+2.3%**
	AMEG D	3.6	3.6	≈
	AMEG C	31.8	32.6	↑
	AMEG B	0.53	0.56	↑
	Biomass	24.1	23.9	-0.6%
France[e]	**Total sales**	**65.4**	**57.5**	**-12.0%**
	AMEG D	13.9	11.6	↓
	AMEG C	51.1	45.6	↓
	AMEG B	0.33	0.30	↓
	Biomass	270.6	281.0	+3.8%
Germany	**Total sales**	**33.5**	**28.1**	**-16.1%**
	AMEG D	8.2	4.9	↓
	AMEG C	24.5	22.5	↓
	AMEG B	0.73	0.72	↓
	Biomass	288.0	288.5	+0.2%
Greece[f]	**Total sales**	**19.4**	**48.2**	**+149.0%**
	AMEG D	6.6	10.5	↑
	AMEG C	11.4	35.1	↑
	AMEG B	1.3	2.6	↑
	Biomass	22.4	22.2	-0.5%
Hungary	**Total sales**	**12.5**	**10.6**	**-15.7%**
	AMEG D	2.0	1.5	↓
	AMEG C	9.8	8.5	↓
	AMEG B	0.74	0.61	↓
	Biomass	55.4	67.2	+21.4%
Ireland	**Total sales**	**78.6**	**107.3**	**+36.5%**
	AMEG D	11.0	51.8	↑
	AMEG C	67.0	54.7	↓
	AMEG B	0.61	0.83	↑
	Biomass	11.7	12.2	+4.5%
Italy[g]	**Total sales**	**29.9**	**30.7**	**+2.8%**
	AMEG D	6.5	7.5	↑
	AMEG C	21.6	21.6	≈
	AMEG B	1.8	1.6	↓
	Biomass	226.2	226.5	+0.1%
Latvia	**Total sales**	**22.5**	**24.3**	**+7.9%**
	AMEG D	3.8	4.3	↑
	AMEG C	18.1	19.4	↑
	AMEG B	0.51	0.59	↑
	Biomass	7.7	7.8	+1.8%

Country	Parameter	2023	2024	Change (%) previous year
Lithuania[h]	**Total sales**	**68.7**	**34.0**	**-50.4%**
	AMEG D	1.7	3.6	↑
	AMEG C	65.6	28.1	↓
	AMEG B	1.4	2.4	↑
	Biomass	7.5	8.1	+7.8%
Luxembourg[i]	**Total sales**	**94.7**	**82.2**	**-13.2%**
	AMEG D	17.2	19.5	13.6%
	AMEG C	75.7	61.2	↓
	AMEG B	1.8	1.5	↓
	Biomass	1.4	1.4	0%
Malta	**Total sales**	**65.6**	**41.2**	**-37.2%**
	AMEG D	14.7	6.7	↓
	AMEG C	50.1	33.6	↓
	AMEG B	0.73	0.87	↑
	Biomass	2.2	2.2	0%
Netherlands	**Total sales**	**78.1**	**54.2**	**-30.5%**
	AMEG D	36.2	22.1	↓
	AMEG C	41.7	32.1	↓
	AMEG B	0.13	0.07	↓
	Biomass	39.5	50.5	+27.9%
Poland	**Total sales**	**14.8**	**15.5**	**+4.2%**
	AMEG D	1.4	1.5	↑
	AMEG C	12.6	13.2	↑
	AMEG B	0.80	0.81	↑
	Biomass	220.2	230.7	+4.8%
Portugal	**Total sales**	**30.5**	**30.5**	**0%**
	AMEG D	9.3	7.9	↓
	AMEG C	20.0	21.2	↑
	AMEG B	1.1	1.4	↑
	Biomass	61.1	70.5	+15.5%
Romania	**Total sales**	**57.7**	**50.7**	**-12.1%**
	AMEG D	46.2	37.6	↓
	AMEG C	10.8	12.4	↑
	AMEG B	0.76	0.80	↑
	Biomass	107.1	108.9	+1.6%
Slovakia	**Total sales**	**14.0**	**14.1**	**+1.3%**
	AMEG D	2.8	2.8	≈
	AMEG C	10.2	10.4	↑
	AMEG B	0.95	0.95	≈
	Biomass	29.1	29.1	0.0%

Country	Parameter	2023	2024	Change (%) previous year
Slovenia	**Total sales**	**32.9**	**28.1**	**-14.5%**
	AMEG D	1.5	2.1	↑
	AMEG C	29.5	24.5	↓
	AMEG B	1.9	1.5	↓
	Biomass	7.3	8.3	+14.4%
Spain[j]	**Total sales**	**36.1**	**30.2**	**-16.3%**
	AMEG D	4.4	7.1	↑
	AMEG C	30.8	22.1	↓
	AMEG B	0.90	0.94	↑
	Biomass	218.5	222.0	+1.6%
Sweden	**Total sales**	**20.1**	**20.1**	**0%**
	AMEG D	12.5	12.2	↓
	AMEG C	7.5	7.8	↑
	AMEG B	0.14	0.12	↓
	Biomass	29.7	30.0	+1.3%
EU	**Total sales**	**37.4**	**34.3**	**-8.2%**
	AMEG D	9.8	8.9	↓
	AMEG C	26.7	24.6	↓
	AMEG B	0.89	0.87	↓
	Biomass	1817	1887	+3.9%
Iceland	**Total sales**	**47.4**	**69.9**	**+47.4%**
	AMEG D	20.2	28.4	↑
	AMEG C	26.7	40.7	↑
	AMEG B	0.49	0.68	↑
	Biomass	0.96	0.72	-24.4%
Norway	**Total sales**	**27.0**	**26.2**	**-2.7%**
	AMEG D	4.1	4.3	↑
	AMEG C	22.5	21.5	↓
	AMEG B	0.36	0.37	↑
	Biomass	13.8	13.6	-1.4%
EU, IS, NO	**Total sales**	**37.3**	**34.3**	**-8.2%**
	AMEG D	9.7	8.8	↓
	AMEG C	26.7	24.6	↓
	AMEG B	0.88	0.87	↓
	Biomass	1831	1902	+3.8%

[1] Sales data subject to mandatory reporting, which only concerns substances with antibiotic activity.
[2] Differences between the two years considered negligible and as equivalent are indicated with (≈). The arrows indicate increase (up) or decrease (down) in sales between the two years. No statistical significance analysis was performed.
[3] The sales numerator for other animals kept or bred most likely reflects sales of antimicrobial VMPs for companion animals. Many VMPs authorised for use in fur animals are also authorised for food-producing animals, and their sales are therefore allocated to the latter group. Since the biomass includes fur animals but sales of VMPs authorised for these species are not fully captured in the numerator, as a result, sales for other animals kept or bred expressed in mg/kg may be underestimated, particularly for countries that keep or breed fur animals.
[a)] Austria: the changes observed in sales from 2023 to 2024 reflect normal annual fluctuations.
[b)] Bulgaria: new products were reported for the first time in 2024. The implementation of the data reporting electronic systems and regulatory obligations led to more complete and realistic sales data reporting.
[c)] Croatia: sales were underreported in 2023 and 2024. The increase in 2024 partly reflects more complete reporting.

[d] Finland: the changes observed in sales from 2023 to 2024 reflect normal annual fluctuations.
[e] France: a decrease was observed in 2024, mainly for amoxicillin with clavulanic acid and aminoglycosides used in cats and dogs.
[f] Greece: sales were underreported in 2023. The increase in 2024 partly reflects more complete reporting and corrections in reporting methodology.
[g] Italy: the 2024 results reflect improved data accuracy, supported by electronic prescriptions, national guidelines, and integrated digital systems for surveillance and stewardship.
[h] Lithuania: fluctuations in sales volumes are mainly influenced by supply-related factors and temporary market availability of certain antimicrobials.
[i] Luxembourg: the 2024 sales decrease may reflect the impact of the national action plan and new reporting legislation, which may have encouraged more targeted ordering practices (e.g. less stockpiling).
[j] Spain: automation and API-based reporting continued to improve data quality and completeness, reducing errors and enabling more precise tracking of antimicrobial sales and use. Differences between 2023 and 2024 sales were confirmed by MAHs and linked to product substitutions, changing feed medication practices, temporary supply interruptions, and new authorisations. Some fluctuations also reflect changes in dosage forms and commercial decisions.

Annex 1.3. Supplementary information for 2024 use data

Table A5. Data providers and data sources used to collect data on the use of antimicrobial medicinal products in cattle, pigs, chickens and turkeys per country in 2024

Country	Type of data provider(s)[1]	Data sources[1]
Austria	Veterinarians	Veterinary practice records
Belgium	Veterinarians	Veterinary practice records
Bulgaria	Veterinarians	Veterinary practice records
Croatia	Veterinarians	Veterinary practice records
Cyprus	Veterinarians	Veterinary practice records
Czechia	Veterinarians	Delivery notes
Denmark	Veterinarians, pharmacies, feed mills	Pharmacy records, veterinary practice records
Estonia	Veterinarians	Veterinary practice records, treatment logbooks
Finland	Veterinarians	Veterinary practice records
France	Veterinarians, pharmacies, feed mills	Delivery notes, prescriptions, veterinary practice records
Germany	Veterinarians	Veterinary practice records
Greece	End-users (including farmers or breeders)	Treatment logbooks
Hungary	Veterinarians	Treatment logbooks
Iceland	Veterinarians, end-users (including farmers or breeders)	Treatment logbooks
Ireland	Veterinarians, end-users (including farmers or breeders)	Veterinary practice records, treatment logbooks
Italy	Veterinarians, end-users (including farmers or breeders)	Treatment logbooks
Latvia	Veterinarians	Treatment logbooks, veterinary practice records
Lithuania	Veterinarians	Treatment logbooks
Luxembourg	Veterinarians	Veterinary practice records
Malta	Veterinarians, pharmacies, feed mills	Prescriptions, pharmacy records
Netherlands	Veterinarians	Prescriptions, veterinary practice records
Norway	Veterinarians, pharmacies, feed mills	Pharmacy records, veterinary practice records, delivery notes
Poland	Veterinarians, end-users (including farmers or breeders)	Health records, treatment logbooks
Portugal	Veterinarians	Prescriptions

Romania	Veterinarians, pharmacies, end-users (including farmers or breeders)	Treatment logbooks, invoices from farms, prescriptions, pharmacy records, veterinary practice records
Slovakia	Veterinarians	Treatment logbooks
Slovenia	Veterinarians	Veterinary practice records
Spain[2]	Retailers, pharmacies	Pharmacy records
Sweden	Veterinarians, pharmacies	Pharmacy records, veterinary practice records

[1]As per Article 13(1) of Commission Delegated Regulation (EU) 2021/578 and Annex II to Commission Implementing Regulation (EU) 2022/209.
[2] Spain also used retail sale of prescribed antimicrobials as a use data source.

Annex 2. Technical notes

Annex 2.1. Antimicrobials to be included in sales and use datasets (scope)

The ATC and ATCvet systems[60,61] are used to classify substances in human and veterinary medicines according to their main therapeutic use. In the context of ESUAvet-ASU activities, the ATC(vet) codes are used to identify those antimicrobial medicinal products for which data collection and reporting to the Agency is mandatory or voluntary[62]. The ATC(vet) codes that determine the antimicrobials under surveillance are summarised in Table A6.

Table A6. Antimicrobial reporting scope as per Articles 1 to 4 of Commission Delegated Regulation (EU) 2021/578

Scope	Groups of antimicrobial substances	ATCvet[1] codes	ATC[2] codes
Mandatory	Antidiarrheals, intestinal anti-inflammatory and antiinfective agents	QA07AA, QA07AB, QA07AX03, QA07AX04	A07AA, A07AB, A07AX03, A07AX04
Mandatory	Gynaecological antiinfectives and antiseptics	QG01AA, QG01AE, QG01BA, QG01BE	G01AA, G01AE, G01BA, G01BE
Mandatory	Antiinfectives and antiseptics for intrauterine use	QG51AA, QG51AG	-
Mandatory	Antibacterials for systemic use	QJ01	J01
Mandatory	Antibacterials for intramammary use	QJ51	-
Mandatory	Antiprotozoals (with antibacterial effect)	QP51AG	-
Mandatory	Antimycobacterials for intramammary use	QJ54 (voluntary for use)	-
Voluntary	Antiprotozoals (other than QP51AG)	QP51	P01
Voluntary	Antifungals for topical use	QD01A	D01A
Voluntary	Antifungals for systemic use	QD01B	D01B
Voluntary	Antimycotics for systemic use	QJ02	J02
Voluntary	Antimycobacterials	QJ04	J04
Voluntary	Antivirals for systemic use	QJ05	J05
Voluntary	Antibiotics and chemotherapeutics for dermatological use	QD06	D06
Voluntary	Other nasal preparations	QR01AX06, QR01AX08	R01AX06, R01AX08
Voluntary	Ophthalmological antiinfectives	QS01AA, QS01AB, QS01AD, QS01AE, QS01CA, QS01CC	S01AA, S01AB, S01AD, S01AE, S01CA, S01CC
Voluntary	Otological antiinfectives	QS02AA, QS02CA, QS03AA, QS03CA	S02AA, S02CA, S03AA, S03CA

[1] ATCvet codes define the reporting scope of both sales and use of antimicrobial VMPs. The ATCvet codes that also fell under ESVAC reporting scope are underlined.
[2] ATC codes define the reporting scope of use of antimicrobial HMPs in animals.

These codes are important for the ASU Platform to identify all products that should appear in the sales and use templates. Therefore, the scope is assigned at product level depending on the ATC or ATCvet code(s) and substances in a product will have the same scope as the product. If a product has more

[60] More information about the ATC code classification system is available here.
[61] More information about the ATCvet code classification system is available here.
[62] As per Articles 1 to 4 of Commission Delegated Regulation (EU) 2021/578.

than one ATC or ATCvet code falling under both the mandatory and the voluntary scope, the product is assigned to the mandatory scope.

Annex 2.2. Reporting of sales and use data by countries

Each calendar year, countries must report the number of packages sold or used per package presentation[63] for the antimicrobial medicinal products within the scopes mentioned above.

For sales of antimicrobial VMPs, countries must also confirm whether the product is authorised for food-producing animals or exclusively for other animals kept or bred (i.e. companion animals and fur animals). In the ASU Platform, by default, sales of VMPs with a withdrawal period indicated in the UPD are classified as for food-producing animals and those without one are assigned to other animals kept or bred. If there is no withdrawal period indicated in the UPD, countries must verify this information against the relevant section of the Summary of Product Characteristics to ensure that the product is not authorised for use in any food-producing animals, including all horses[64]. If it is authorised, countries must update the ASU sales template accordingly.

For use data, countries must report the number of packages used of each VMP/HMP per animal species and animal species category[65] within their territory, following the stepwise approach as per Article 15 of Commission Delegated Regulation (EU) 2021/578.

Annex 2.3. Calculation of sales and use data (numerator)

The quantity of antimicrobial active substance sold or used is calculated for each antimicrobial medicinal product presentation (and use species or category in the case of use data) by multiplying:

- the number of packages sold or used;
- the strength given in the corresponding product information;
- the pack size.

For fixed combination antimicrobial medicinal products, the quantity of each antimicrobial active substance is calculated separately.

These calculations are performed automatically in a standardised and harmonised manner by the ASU Power BI application, including the use of conversion factors to convert international units (IU) into mg when the strength is reported in IU or to calculate the mass of antimicrobial active moiety in mg when the strength is reported as the derivative strength. The ASU Power BI application uses all IU and derivative conversion factors available in EMA's Substance Management Service (unpublished). The conversion factors common with ESVAC are listed in the ASU Technical Implementation Protocol[66].

[63] Packaged veterinary or human antimicrobial medicinal product approved for marketing as provided in the relevant section of the corresponding Summary of Product Characteristics SPC. Each product presentation is distinguished by the name, package ID, strength, form, pack size and packaging material.
[64] Regulation (EC) No 854/2004 establishes that horses are considered to be food-producing animals. Typically, statistics on living horses cover both food-producing and non-food-producing horses. This implies that the use of medicines authorised for horses not intended for slaughter is also included in the surveillance.
[65] For more information on the instructions to countries for collecting and reporting antimicrobial use data for each animal species and category please refer to Antimicrobial use data reporting per animal categories (numerator) - Manual for reporting the data to the Agency (EMA/757638/2021).
[66] For more information on the methodology followed to calculate the quantity of antimicrobial active substance sold or used per antimicrobial medicinal product presentation and on the conversion factors, please refer to Antimicrobial Sales and Use (ASU) technical implementation protocol (EMA/27838/2024).

Annex 2.4. Animal population data and biomass (denominator)

What are denominators?

To ensure comparability of the reported data and to allow monitoring of trends – both on the volume of sales of antimicrobial VMPs and on the use of antimicrobial medicinal products in animals – it is necessary to evaluate these data in the context of the associated animal populations, which vary in size and composition across countries.

For the purpose of these reports, denominators are used as a proxy for the animal population likely to be treated with antimicrobials within a reporting year and expressed as animal biomass (kg) per year. They are calculated by multiplying standardised animal weights by the total number of animals slaughtered or by the number of live animals present in a country during the data collection period[67]. In the context of intra-EU trade, the biomass of animals sent to or brought from other countries are subtracted and added, respectively, from the domestic animal biomass so that only animals raised in the country during the time at which they could have been treated with antimicrobials are considered.

For presenting data in this report, the following animal biomass sales denominators were used:

- **Denominator for food-producing animals**: the biomass of cattle, pigs, chickens, turkeys, other poultry (ducks and geese), sheep, goats, finfish, horses and rabbits are used as the denominator of sales assigned to food-producing animals.
- **Denominator for other animals kept or bred**: the biomass of dogs, cats and fur animals are used as the denominator of sales assigned to other animals kept or bred.
- **PCU:** the ESVAC denominator[68] that has been in place for several years for reporting the sales of antimicrobial VMPs is used in this report solely for the purpose of monitoring the progress towards the EU antimicrobial sales reduction target (Section 3 and Annex 6).

What animal population data are used for the calculation of the denominators?

The food-producing animal population data used in this report come mainly from two reference data sources:

- the European Statistical Office (Eurostat) for the numbers of livestock and slaughtered food-producing animals;
- the Trade control and Expert System (TRACES) for numbers of animals moved between the EU countries, Iceland and Norway for fattening or slaughter.

For certain animal species — such as rabbits, geese, horses, farmed fish, dogs, cats, minks and foxes — data are not available in Eurostat, and national statistics, when available, have to be used instead. As many countries do not collect data or have data with low coverage for cats and dogs, figures published in the annual reports of the European Pet Food Industry (FEDIAF)[69] have been used as reference data to calculate the biomass for these species[70].

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[67] For more information on how these denominators are calculated please refer to the Guideline on reporting antimicrobial sales and use in animals at the EU level – denominators and indicators (EMA/CVMP/882931/2022)
[68] For more information please refer to the European Surveillance of Veterinary Antimicrobial Consumption (ESVAC) Sales Data and Animal Population Data Reporting Protocol (EMA/210691/2015-Rev.4) and the 13th ESVAC report (EMA/299538/2023).
[69] FEDIAF: https://europeanpetfood.org/
[70] For more information what animal population data is used please refer to the Guideline on reporting antimicrobial sales and use in animals at the EU level – denominators and indicators (EMA/CVMP/882931/2022).

Countries have verified and validated all animal population data, amending them when necessary[71]. Each country is responsible for the quality of the data it delivers to EMA.

Annex 2.5. Data presentation and indicators

The quantities of antimicrobial active substance sold or used are expressed using the following metrics[72]:

- Tonnes sold (expressed in mg when used as numerator).
- As proportion of total sales or use (in tonnes).
- Milligrams sold per kilogram of animal biomass (mg/kg). This indicator is to be used for all ESUAvet sales data collected under Article 57 of Regulation (EU) 2019/6.

$$\frac{\text{Quantity antimicrobial active substance in mg}}{\text{Animal biomass in kg}}$$

- Milligrams sold per kilogram of PCU (mg/PCU). This indicator is only used for the analysis of sales data for monitoring the progress towards the EU antimicrobial sales reduction target and is different from the mg/kg indicator in that it follows the ESVAC methodology for analysing sales data[73].

The quantities of antimicrobial active substance sold are presented in this report in the following ways:

- Aggregated at EU level (27 EU countries), or per country. Data aggregated for all 29 reporting countries (27 EU countries, Iceland and Norway) are only shown in tables or when there are significant differences with the EU aggregated data. When presented in mg/kg, the aggregated data is the total quantity of antimicrobial active substance (mg) divided by the total relevant animal biomass (kg).
- Per product form, which are specific groupings of authorised pharmaceutical forms that take into consideration the route of administration and the intended site of action. The product forms used in this report are listed in Table A7[74].
- Per antimicrobial class. The antimicrobial classes used in this report and the basis of the classification used are explained in Annex 3.

[71] As per Article 16(5) of Commission Delegated Regulation (EU) 2021/578.
[72] For more detailed information on the indicators used in this report, please refer to the Guideline on reporting antimicrobial sales and use in animals at the EU level – denominators and indicators (EMA/CVMP/882931/2022).
[73] For more information on the transition from ESVAC and ESUAvet sales, please refer to Annex 5 of the first ESUAvet report: https://www.ema.europa.eu/en/documents/report/european-sales-use-antimicrobials-veterinary-medicine-annual-surveillance-report-2023_en.pdf
[74] For more information on product forms, please refer to the ASU technical implementation protocol (EMA/27838/2024).

Table A7. Product forms reported per antimicrobial VMP presentation

Product form	Description
INJ	Injectable products
INTRAMAM	Intramammary products
INTRAMAM-LC	Intramammary products for lactating cows
INTRAMAM-DO	Intramammary products for cows during the drying-off period
ORAL PASTE	Oral pastes
ORAL POWD	Oral powders to be administered in feed or in drinking water and feed
ORAL SOLU	Oral solutions
PREMIX	Premixes
TABL	Capsules, tablets, boluses and other similar oral pharmaceutical forms
INTRAUT	Intrauterine products
TOPICAL_DERM	Topical dermatological products
TOPICAL_OPHTHALM	Topical ophthalmological products
TOPICAL_OTOLOG	Topical otological products
TOPICAL_NASAL	Topical nasal products
OTHER	Other forms when none of the previous product forms apply

Annex 3. List of antimicrobial substances reported in the ESUAvet reports

The classification of antimicrobial substances in the context of the ASU Platform corresponds to the classes and subclasses defined in the ATC and ATCvet classification system, using WHO international non-proprietary names (INN) where available. If INNs have not been assigned, the ATCvet system applies either USAN (United States Adopted Names) or BAN (British Approved Names). Substances are assigned to a single class irrespective of whether the medicinal product sold or used is a single or a fixed-combination product. Exceptions to this are penicillin and beta-lactamase inhibitor combinations.

Table A8 includes all the substances for which sales were reported under the mandatory scope since 2023, their assigned class and AMEG category. Some of these substances are only authorised for use in companion animals and indications have been added to those substances for which maximum residue limits (MRLs) have not been established or that are prohibited for use in any food-producing animals as per Tables 1 and 2 of the Annex to Commission Regulation (EU) No 37/2010.

Table A8. List of substances for which sales or use were reported under the mandatory scope, 2023-2024[1]

Antimicrobial category	Antimicrobial class	Antimicrobial subclass	Substances*	AMEG category
Antibacterials	1st- and 2nd-gen. cephalosporins	First-generation cephalosporins	Cefacetrile, Cefadroxil[2], Cefalexin, Cefalonium, Cefapirin, Cefazolin	C
	3rd- and 4th-gen. cephalosporins	Third-generation cephalosporins	Cefoperazone, Cefovecin[2], Ceftiofur	B
		Fourth-generation cephalosporins	Cefquinome	B
	Aminoglycosides	Other aminoglycosides	Amikacin[2], Apramycin, Framycetin, Gentamicin, Kanamycin, Neomycin, Paromomycin	C
		Streptomycins	Dihydrostreptomycin, Streptomycin	C
	Amphenicols	Amphenicols	Chloramphenicol[3], Florfenicol, Thiamphenicol	C
	Fluoroquinolones	Fluoroquinolones	Danofloxacin, Difloxacin, Enrofloxacin, Marbofloxacin, Norfloxacin[2], Pradofloxacin[2]	B
	Imidazole derivatives	Imidazole derivatives	Metronidazole[3]	D
	Lincosamides	Lincosamides	Clindamycin[2], Lincomycin, Pirlimycin	C
	Macrolides	Macrolides	Erythromycin, Gamithromycin, Spiramycin, Tildipirosin, Tilmicosin, Tulathromycin, Tylosin, Tylvalosin	C
	Nitrofuran derivatives	Nitrofuran derivatives	Furazolidone[3]	D
	Other antibacterials	Other antibacterials	Bacitracin, Furaltadone[3], Nitroxoline[2], Novobiocin,	D (except Nitroxoline and

Antimicrobial category	Antimicrobial class	Antimicrobial subclass	Substances*	AMEG category
Antibacterials			Rifaximin, Spectinomycin	Novobiocin which aren't categorised and rifaximin which is category C)
	Other quinolones	Other quinolones	Flumequine, Oxolinic acid	B
	Penicillins	Beta-lactamase resistant penicillins	Cloxacillin, Dicloxacillin, Nafcillin, Oxacillin	D
		Beta-lactamase sensitive penicillins	Benzylpenicillin, Phenoxymethylpenicillin	D
		Combinations of penicillins, incl. beta-lactamase inhibitors	Amoxicillin	C
		Penicillins with extended spectrum	Amoxicillin, Ampicillin, Metampicillin[2]	D
	Pleuromutilins	Pleuromutilins	Tiamulin, Valnemulin	C
	Polymyxins	Polymyxins	Colistin	B
	Sulfonamides	Sulfonamides	Sulfacetamide, Sulfachlorpyrazine, Sulfachlorpyridazine, Sulfaclozine, Sulfadiazine, Sulfadimethoxine, Sulfadimidine, Sulfadoxine, Sulfaguanidine, Sulfamerazine, Sulfamethoxazole, Sulfamethoxypyridazine, Sulfamonomethoxine, Sulfapyridine, Sulfaquinoxaline, Sulfathiazole	D
	Tetracyclines	Tetracyclines	Chlortetracycline, Doxycycline, Oxytetracycline, Tetracycline	D
	Trimethoprim	Trimethoprim	Trimethoprim	D

[1] The ASU Platform groups antimicrobial substances in categories, classes and subclasses taking into account the ATCvet codes in the Annex to Commission Delegated Regulation (EU) 2021/578 and the ATC(vet) classification system.
[2] MRLs not established for any food-producing animals.
[3] Included in Table 2 (prohibited substances) of the Annex to Commission Regulation (EU) No 37/2010.

Annex 4. Data quality

Different efforts and measures have been made to ensure the best possible quality of the data presented in this report. This includes the antimicrobial medicinal product data used to calculate the total amount of antimicrobial active substance(s) per product presentation, as well as the reported sales data and use data. Each country is responsible for the quality of the data it delivers to EMA and is assisted by EMA with data validation.

Annex 4.1. Medicinal product data quality

One of the main benefits of the ASU Platform is its integration with other EMA IT systems, such as SPOR and UPD. This integration helps avoid duplication of data entry across systems and ensures a single, consistent source of information. However, it posed challenges during the first ESUAvet data call, as both data quality and system integration needed to be thoroughly verified and validated.

Following significant efforts by EMA and countries in 2024, for the first ESUAvet report, EMA estimated the impact of the unresolved data quality issues on the total reported 2023 sales within the mandatory scope by calculating what the total amount of antimicrobial active substance sold would have been if the product information had been correct. Based on this estimation, total aggregated sales (in tonnes) for all reporting countries were 0.08% lower than they should have been. At country level, the impact ranged between -3.1% and 1.3% but was within ±0.5% for 25 out of 29 countries.

During the second data call, the same medicinal product data quality checks were applied. These focused on unvalidated products sold or used in 2024 but not in 2023, as well as on all the products within the voluntary scope that were sold or used in either 2024 or 2023. Using the same approach, EMA estimated that total aggregated sales under the mandatory scope for 2024 were 0.03% lower than they should have been. At country level, the impact ranged from -1.2% to 0.38% and was within ±0.1% for 21 out of 29 countries.

The impact on the reported use data is estimated to be similar to that of sales data, as both rely on the same medicinal product information.

These results confirm the earlier assumption that most of the work to improve product data quality was completed during the 2023 data call. Nevertheless, further improvements were made during the 2024 data call, enhancing the overall quality of medicinal product data for all countries.

Annex 4.2. Sales data quality

Sales data quality refers here to compliance with the legal requirements and to the accuracy and coverage of the antimicrobial VMP sales data as submitted via the ASU sales templates and indicated in the ASU sales questionnaire. Each country defines and sets up their quality control measures, including assessment of data coverage and accuracy, considering the distinctive characteristics of their national data collection systems. Consequently, quality control measures are not harmonised across reporting countries and the answers given in the questionnaire and presented in this report should be interpreted with care. Further efforts will be made to harmonise how reporting countries measure these data quality parameters[75].

[75] Of note, at the beginning of 2024, ESUAvet guidance was published to advise countries on how to establish a data quality management plan for the collection of antimicrobial sales and use data: Manual for Member States for establishing a data quality management plan for the collection of antimicrobial sales and use data under Regulation (EU) 2019/6 and its delegated and implementing regulations (EMA/CVMP/ESUAVET/570091/2023)

In addition to estimating coverage and accuracy of their sales data, countries had to meet a series of data quality requirements that are listed in the legislation[76]. Fulfilment of these requirements and the estimated coverage and accuracy of the sales data were communicated to EMA via the ASU sales data questionnaire. The following points summarise countries' compliance with the data quality requirements for 2024 data:

- Full coverage of sales data was achieved for all but three countries (for more information see Table 1A). The methodologies used to calculate coverage varied greatly across countries. The most common approach, used by 17 countries, was to measure coverage as the percentage of data providers that provided data. Other countries assessed coverage by crosschecking sales data from multiple data providers or by verifying whether data were provided for all authorised antimicrobial products within the mandatory scope.
- Sixteen countries indicated that their data were fully accurate. Among the remaining thirteen, two estimated accuracy between 90-95%, five provided qualitative assessments (e.g. 'accurate', 'high', 'reliable') and six were unable to calculate this parameter. As with coverage, the methodologies to estimate accuracy varied widely. For example, some countries based their estimates on the overall quality of the dataset, others cross-checked reported data with alternative sales data providers, compared figures with previous reporting periods, or calculated the proportion of nationally reported sales that were then submitted to the Agency via the ASU Platform. In several cases, there was overlap between the methodologies used to assess coverage and accuracy.
- All countries indicated that actions were taken to avoid double reporting of sales data, if applicable.
- All countries except two confirmed that their sales data were corrected for movements of products across their borders as part of parallel trade, if applicable.
- All countries but one confirmed that data were validated and reported according to the standards specified in the latest reporting protocols and templates made available by the Agency.
- All countries but one confirmed that data were amended in case gaps, errors or inconsistencies were identified.
- All countries confirmed that data on the volume of sales covered all sales in their territory of at least the antimicrobials listed as part of the mandatory reporting scope.
- Five countries reported, in total, sales of 57 VMPs via the ASU sales questionnaire because these were not available in the ASU templates due to withdrawn authorisation status, data quality issues or import from third countries. The sales of these products were excluded from the sales results presented in this report.

After submission, data were further validated by countries and EMA using the ASU Power BI Data Validation reports to detect potential outliers in the submitted datasets. This was done by comparing total sales (in tonnes), by product form and antimicrobial class with data from the previous reporting year. Any inconsistencies or outliers were followed up with the respective countries. EMA also ensured that the responses countries provided to the ASU sales data questionnaire were both adequate and complete.

Annex 4.3. Use data quality

Use data quality refers here to compliance with the legal requirements, as per Article 6 of the Commission Delegated Regulation (EU) 2021/578, and to the accuracy and coverage of the data on

[76] As per Article 6 of the Commission Delegated Regulation (EU) 2021/578.

use of antimicrobial medicinal products in animals as submitted via the ASU use templates and indicated in the ASU use questionnaire. As with sales data, use data quality control measures, including assessment of data coverage and accuracy, are defined and set up by each country individually, considering the distinctive aspects of each country's data collection system, which in this case can also vary per animal species.

The year 2023 marked the first time that all 27 EU Member States, along with Iceland and Norway, were required to collect use data for cattle, pigs, chickens and turkeys. This led many countries to establish new national data collection systems. In 2024, some countries were still in the process of setting up or finalising these systems. Consequently, the quality of the reported data continues to vary significantly across countries and ongoing efforts are essential to improve the completeness and quality of these data in the coming years.

The following points summarise countries' compliance with the data quality requirements in 2024:

- Accuracy and coverage varied greatly across countries and species. For more information on the coverage reported per country and animal species, please refer to Tables 5 to 8 of Sections 2.2 to 2.5. The methodology used to calculate these parameters varied greatly across countries. For example, some countries measured the accuracy of their data by evaluating the quality of the data in the use template, while other calculated the percentage of nationally reported entries subsequently reported to the Agency. Coverage was assessed using various methods, such as the percentage of total use reported, the proportion of data providers who submitted data, or the share of animals from reporting farms relative to the total animal population, among other methodologies. As with the sales data, in several cases, there was overlap between the methodologies used to assess coverage and accuracy. Not all countries were able to calculate these parameters for all animal species.
- All countries took actions to avoid double reporting of use data, if applicable.
- All countries except two confirmed that data were validated and reported according to the standards specified in the latest reporting protocols and templates made available by the Agency.
- All countries except five confirmed that data were amended in case gaps, errors or inconsistencies were identified.
- Twenty-two countries provided use data of at least the antimicrobials from the mandatory scope for all animal species and categories or stages, referred to in Article 15(1) of Commission Regulation (EU) 2021/578. Of the remaining seven countries: one did not provide data for at least one of the animal species, five only provided data at species and not category level for at least one of the animal species and one did not provide any use data for any animal species.
- Nine countries reported, in total, use of 76 medicinal products via the ASU use data questionnaire because these products were not available in the ASU templates due to withdrawn authorisation status, data quality issues, import from third countries or because they were human medicinal products. Therefore, the use of these products was excluded from the results presented in this report.

In addition to the actions taken by countries, EMA validated the submitted data per use species following the same process as described above for the sales data.

Annex 5. Corrections of historical data

Occasionally, errors or inconsistencies in previously submitted datasets are identified during the data validation process. In such cases, data are corrected and the updated values are published in the **ESUAvet sales public dashboard** as soon as they have been validated and approved by the reporting country. Published reports are not updated when changes to data are implemented in the interactive database, therefore minor discrepancies between values in ESUAvet reports and the public dashboards may occur.

Annex 5.1. Sales data

During the validation process of 2024 data, the following historical sales updates were performed and included in the results of this report:

- France corrected the number of packs sold for various products and the product form for two products in the 2023 sales data, resulting in a slight decrease in total sales under the mandatory scope from 271.9 to 271.6 tonnes (-0.11%).
- Italy corrected their 2023 sales data after detecting double reporting and incorrect data transfer in some VMPs for pigs, primarily in oral solutions. Also, a previously undetected high-impact data quality issues was corrected. Together, these updates resulted in a decrease in total sales under the mandatory scope from 658.0 to 513.3 tonnes (-22.0%).
- Malta corrected the number of packs sold for one product in the 2023 sales data, increasing total sales under the mandatory scope from 1.2 to 1.3 tonnes (+7.6%).

Annex 5.2. Animal population data

During the validation process of 2024 data, the following historical animal population updates were performed and included in the results of this report:

- In Cyprus, the actual cat population is significantly higher than figures reported in FEDIAF or national statistics. This discrepancy is due to the large number of free-roaming cats, most of which do not have owners and are not microchipped. To address this, the responsible Ministry is currently implementing a project to microchip and count these animals. Until more accurate data become available, Cyprus has opted to use FEDIAF estimates for this animal species. As a result, the 2023 animal population data were updated with 2023 FEDIAF data for cats, which were unavailable the previous year. This update resulted in an increase of 6.2% of the of the estimated biomass in 2023, from 3,488.3 to 3,703.0 tonnes, compared to previously published values).
- Finland corrected the number of laying hens reported for 2023, which had been previously overreported. Compared to previously published values, this update resulted in a minor change in the estimated biomass for food-producing animals in 2023, from 874.7 to 865.1 (-1.1%).
- France corrected the number of cats and dogs for 2023, which had been previously underestimated due to a change in census methodology. Compared to previously published values, this update resulted in a slight increase in the estimated total biomass of other animals kept or bred, from 253.8 to 270.6 tonnes (+6.7%).
- Luxembourg updated the 2023 animal population data for cats and dogs by replacing the 2022 national statistics placeholder for dogs with the corresponding figures for 2023 and by adding FEDIAF 2023 data for cats for which no data had been previously reported. Compared to previously

published values, this update resulted in an increase in the total biomass for other animals kept or bred, from 941.2 to 1,448.5 tonnes (+53.9%).

- Malta updated its 2023 animal population data by replacing the 2022 placeholder figures for finfish with 2023 Eurostat data. Compared to previously published values, these updates resulted in a negligible decrease in the total food-producing animal biomass, from 27,564.7 to 27,509.9 tonnes (-0.2%). Additionally, 2024 national statistics for dogs and cats were added as placeholders for 2023, since no data had been available for these species in the previous year.
- Romania identified errors in the 2023 animal population data for cattle and finfish. As a result of these corrections, compared to previously published values for 2023, the biomass for cattle decreased from 1.9 to 1.3 million tonnes (-33%) and the total estimated food-producing animal biomass decreased from 4.8 to 4.1 million tonnes (-13.4%). There was no change in the total finfish biomass.
- Slovakia changed the data source of dogs and cats for 2023 from FEDIAF to national statistics in order to use the same data source as in 2024 and avoid a big change in biomass for these species due to the use of different data sources in different years. Compared to previously published values, this led to an increase in the estimated biomass of other animals kept or bred in 2023, from 21,000 to 29,104.1 tonnes (+38.6%).
- Spain identified discrepancies in the 2023 animal population data for geese, minks, finfish and fur animals. As a result of these corrections, compared to previously published values for 2023, the estimated total food-producing animal biomass had a negligible decrease (-0.02%), while the total biomass for other animals kept or bred increased slightly (+1.4%). Additionally, a small decrease in PCU was noted (-0.12%).

Annex 5.3. Use data

During the validation process of 2024 data, the following historical use updates were performed and included in the results of this report:

- Ireland corrected the number of packs used in 2023 in pigs for various products due to previous miscalculations.
- Spain identified and corrected discrepancies in the 2023 use data reported for cattle and pigs that were due to internal reporting issues during the initial submission.

Annex 6. Country trends from preceding reporting periods

To compare ESUAvet sales data with preceding reporting periods, Table A9 presents published ESVAC data from 2018[77] to 2022 for EU countries, Iceland and Norway. Data from 2023 onwards (reported to the ASU Platform) are analysed according to ESVAC methodology to monitor the progress towards the EU antimicrobial sales reduction target (Section 3).

Table A9. Sales trends for food-producing animals, including horses and farmed fish, per country, in mg/PCU, from 2018 to 2024

Country	2018	2019	2020	2021	2022	2023	2024
Austria[a]	50.2	42.6	46.3	41.3	36.2	36.0	38.2
Belgium[b]	113.0	101.9	103.4	95.3	73.5	61.8	70.7
Bulgaria[c]	119.6	112.7	120.9	124.5	103.2	103.6	108.6
Croatia[d]	70.8	62.8	68.6	62.7	56.2	45.4	59.4
Cyprus	392.3	350.0	344.2	296.5	254.7	186.6	189.8
Czechia	56.9	53.8	56.2	50.0	46.4	42.2	42.7
Denmark	37.8	37.1	37.2	33.4	34.1	31.9	34.9
Estonia	52.9	53.5	49.2	46.6	45.8	42.5	40.2
Finland	18.2	19.1	16.2	17.0	14.9	16.1	15.7
France	64.2	58.3	56.6	51.7	38.9	39.5	39.8
Germany[e]	88.4	78.6	83.8	73.2	69.9	71.1	75.5
Greece[f]	93.6	84.8	96.4	108.8	89.0	56.0	62.3
Hungary	180.5	184.8	163.4	155.6	111.2	97.1	106.4
Ireland	45.9	40.8	47.0	42.4	33.6	33.4	33.8
Italy[g]	244.0	191.1	181.8	173.5	157.5	140.3	133.0
Latvia	35.9	28.2	29.6	25.5	20.8	21.5	27.5
Lithuania[h]	32.7	65.6	60.2	71.2	48.2	42.5	53.9
Luxembourg	33.6	29.0	29.0	27.1	25.1	24.7	20.3
Malta[i]	153.4	110.3	116.1	110.5	74.4	80.2	79.3
Netherlands[j]	57.4	48.2	50.2	47.6	37.0	39.4	43.3
Poland[k]	168.3	185.2	187.9	175.5	196.0	150.9	166.3
Portugal[l]	183.4	143.8	172.5	149.9	77.1	133.4	105.8
Romania[m]	82.7	53.9	57.8	59.0	48.8	73.0	81.7
Slovakia	49.2	42.3	51.9	41.7	41.1	45.0	52.7
Slovenia	43.2	44.9	33.3	31.8	25.7	24.3	25.1
Spain[n]	219.0	126.7	154.3	157.2	127.4	156.8	166.9
Sweden	12.1	11.4	12.2	12.1	10.6	11.2	11.3
EU	**118.3**	**95.6**	**101.5**	**96.9**	**84.8**	**85.5**	**89.6**
Iceland	4.8	3.5	3.8	3.6	4.4	4.3	5.3
Norway	2.9	2.3	2.3	2.3	2.1	2.1	2.2
EU, IS, NO	**113.9**	**92.0**	**97.5**	**92.8**	**81.2**	**81.7**	**85.6**

[a)] For Austria, VMPs bought in other Member States (under the cascade use) were included for the first time in 2023; the impact on previous years is expected to be minor, estimated at less than 5%.
[b)] For Belgium, the data reported concerns sales made in the country and does not include sales of VMPs bought in other Member States. The proportion of sales bought in other Member States is currently unknown. A project to collect sales data

[77] Baseline for the EU antimicrobial sales reduction target.

at the lowest level in the chain to address this gap is underway, with the first sales data expected in 2028. In 2023, Belgium also changed the data providers from wholesalers and feed mills to MAHs and feed mills.
[c)] Bulgaria changed data providers from wholesalers to wholesalers and MAHs in 2023, and in 2024 only to MAHs.
[d)] Croatia changed data providers from wholesalers to wholesalers and MAHs in 2023. Full coverage was not achieved in 2023 and 2024.
[e)] Due to legal changes since the collection year 2023, Germany has an extended group of recipients for which data must be reported. For the first time, the quantities of antibiotic VMPs dispensed to pharmacies, for example, were also recorded. Furthermore, data are now collected according to specific ATCvet codes. This leads to slight shifts for certain VMPs.
[f)] For Greece, in 2023 the volume of sales of antimicrobial VMPs were retrieved from the National Submission System in which both MAH and local representatives report sales data. Full coverage in 2023 was not achieved. In all other years, MAHs were the only data providers.
[g)] For Italy, sales data represent sales from MAHs to wholesalers and feed mills for 2018–2019. Since 2020 they represent sales of premixes from MAHs to wholesalers and dispensed e-prescription for all other pharmaceutical forms obtained from wholesalers, pharmacies and others to veterinarians, farmers and companion animal owners. In 2023, Italy changed the data provider of premixes, from MAHs to feed mills. 2022 sales are underestimated due to underreporting.
[h)] For Lithuania, corrections to sales data were made for 2019–2021 during the preparation of the 13th ESVAC report. It is advisable to exercise caution when interpreting trends and drawing conclusions from data for Lithuania up to 2019, as it was not feasible to verify their accuracy or completeness.
[i)] In Malta, veterinary surgeons occasionally supply VMPs without the veterinary prescription when they administer the product themselves and/or give small amounts of VMPs to start the treatment. However, they are not exempt from the record keeping requirements and according to Subsidiary Legislation 437.115 they must always issue a veterinary prescription when they administer antimicrobials VMPs.
[j)] For the Netherlands in 2023, the import of antimicrobial VMPs by wholesalers due to shortages - sales which are not collected by MAH – has a minor impact on the coverage of sales reported (app. 1%). In 2024, import accounted for 2.4% of the use in monitored sectors.
[k)] For Poland, sales prior to 2023 are likely an overestimation due to an error in reporting pack sizes.
[l)] For Portugal, medicated feed bought in other Member States is not captured in the reported sales. The sales coverage reported in 2024 is similar to that of previous reporting periods. 2019 and 2022 sales are underestimates, due to underreporting. In 2023, Portugal changed data providers from wholesalers to MAHs and wholesalers.
[m)] In Romania, from 2018 to 2022, non-national MAHs only reported what was sold from their stock to the end user. From 2023, these data providers reported all sales that entered in Romania, whether or not they were sold to end-users in that year.
[n)] Spain changed the data providers from retailers, feed mills and pharmacies (use data) to MAHs (sales data) in 2023.

Annex 7. Distribution of VMPs, antimicrobial sales and use data collection systems, and AMR policy initiatives at country level

ESUAvet reporting countries are responsible for the information provided in this annex as per Article 12(3) and 13(4) of Commission Delegated Regulation (EU) 2021/578. **In all countries, antimicrobial-containing VMPs and medicated feed can only be dispensed with a veterinary prescription**. While most countries have been gathering sales data for over ten years, many only began collecting use data following the implementation of Article 57 of Regulation (EU) 2019/6. This is reflected in the current implementation status of various use data collection systems.

Table A10. Distribution of VMPs, antimicrobial sales and use data collection systems, and AMR policy initiatives at country level

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
Austria	VMPs are distributed by marketing authorisation holders (MAHs) or wholesalers to public pharmacies, veterinary pharmacies, and veterinary medicine academic training centres, where veterinarians or pharmacists dispense them to animal owners and farmers, or they are directly administered to the animal by veterinarians. Since 2014, MAHs and wholesalers must report all sales of antimicrobial VMPs to the national database PHAROS managed by the Austrian Agency for Health and Food Safety (AGES).	Since 2015, veterinarians must report their dispensing data to the national database PHAROS which was enhanced in 2023 to enable reporting of administered amounts of VMPs. These data are collected in predefined units and converted to the smallest pack size for ESUAvet reporting. Off-label use from other MSs is reported separately to the authority and later added to the use dataset. Use data reporting is also managed by the AGES.	Since 2014, the legal basis for the monitoring of sales and use of antimicrobial VMPs in Austria is the Veterinär-Antibiotika-Mengenströme-Verordnung BGBl. II Nr. 83/2014. A national action plan against AMR was launched in 2013 and last updated in 2021, with key focus on improving veterinary antimicrobial consumption monitoring with results being published annually in a national report and individual benchmarking reports for veterinarians and farmers. Further initiatives include ongoing research projects on antimicrobial use in livestock, prudent use campaigns and binding guidelines for veterinarians that have both been in place since 2018. More information on the national action plan and report is available here.

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
Belgium	Manufactures and importers supply VMPS directly or via wholesalers to veterinarians and pharmacies who dispense them to animal owners. Premixes are supplied by manufacturers, importers, or wholesalers to medicated feed producers, who distribute medicated feed exclusively to farmers. Since 2022, sales data are collected biannually from MAHs and annually from medicated feed manufacturers via the Vet-AM Sales platform on the PharmaStatus website, managed and validated by the Federal Agency for Medicines and Health Products (FAMHP). A new system (VAMREG) is currently under development to enable sales data collection at veterinarian and pharmacy level starting in 2028.	Since 2017, veterinarians must report antimicrobial use in cattle, pigs and poultry to the Sanitel-Med data collection system run by the FAMHP. Farmers can validate the submitted data and request corrections, if needed. Data can be entered as packages or units, which are later converted to package equivalents. A new system (VAMREG) is currently under development to enable use data collection for non-food producing animals at veterinarian and pharmacy level starting in 2026.	In Belgium, AMR awareness campaigns are based on BelVet-SAC and BELMAP reports. Use of critical antibiotics requires susceptibility testing by royal decree. Since 2016, successive 'Antibiotics Convenants' have set ambitious reduction targets, now embedded in the One Health National Action Plan on AMR, currently being updated for 2025–2029. Furthermore, the AMCRA Vision 2024 and Vision 2030 define responsible use targets. In 2024, a royal decree introduced farm benchmarking and mandatory coaching based on antibiotic use, supported by the launch of accredited AMR coach training courses. Further initiatives include the "Talk about antibiotics" campaign and participation in EU-JAMRAI 2 activities. From September 2024, conditions for using critical antibiotics apply to all animal species.
Bulgaria	Wholesalers acquire VMPs from authorised manufactures and distribute them to veterinarians, pharmacists and farmers. Animal owners can obtain VMPs from pharmacies or wholesalers, or directly from veterinarians. Medicated premixes are supplied by wholesalers directly to feed mills, which dispense medicated feed to farmers.	Since 2023, veterinarians also use the AMRTool system to report their antimicrobial use data for all animal species and categories. All data are collected at package level.	A new National Action Plan for 2025–2028 outlines five key steps for preventing AMR, including raising awareness, improving surveillance, strengthening infection control, antibiotic use optimisation, and effective programme monitoring. The BFSA oversees surveillance, reporting and action plan implementation via an expert council. Furthermore, prudent antimicrobial use is

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
	MAHs or their local representatives report sales data through a semi-automated system called AMR Tool which is managed by the Bulgarian Food Safety Agency (BFSA).		supported by regular stakeholder meetings, trainings on AMR risks, and the Veterinary Activity Law was amended in 2024 to support EU Regulation 2019/6. Additionally, the "From farm to fork" project was launched by the Ministry of agriculture and food to track antimicrobial VMP use at farm level and enable future digitalisation of veterinary records.
Croatia	VMPs are distributed by pharmaceutical companies or wholesalers to veterinary practices, veterinary pharmacies, and feed mills. They can be purchased by animal owners from veterinary pharmacies. Sales data are collected from wholesalers using a structured Excel form and validated against data submitted by MAHs to the UPD. Sales data submission is managed by the Croatian Ministry of Agriculture, Veterinary and Food Safety Directorate.	Since 2023, veterinarians report antimicrobial use data to the Croatian Ministry of Agriculture, Veterinary and Food Safety Directorate in the same way for all animal species. Data are collected at the package level. Currently, there is no electronic system in place.	Sales data collection is regulated by national laws published in the Official Gazette of the Republic of Croatia, Nos 84/08, 56/13, 94/13, 15/15 and 32/19. Regular training for veterinarians and farmers supports implementation, aligned with the Ministry of Health's AMR national plan.
Cyprus	VMPs are dispensed through pharmacies or veterinary clinics, that are supplied by authorised wholesalers. Medicated feed containing antimicrobials is produced by licensed feed mills and distributed by approved suppliers.	Due to the ongoing development of Cyprus' electronic prescription system, expected in 2026, use data is currently manually collected from retailers and veterinary records by the Veterinary Services Department as for the sales	The 2018 national AMR plan, currently under revision in 2025, includes awareness campaigns, infection prevention measures, controls on critical antimicrobials and recommendations on responsible use. The 2012 National Strategic Plan on AMR,

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
	Sales data are currently collected via written reports from wholesalers and feed mills and managed by the Veterinary Services Department of the Ministry of Agriculture, Rural Development and Environment. An electronic system is expected to be implemented in 2026.	data. Data are collected at package level and cannot yet be separated by animal categories.	focused on human health, is also under revision to strengthen veterinary measures in line with EU and WOAH guidelines. Additional efforts that have led to a steady decline in antimicrobial consumption, including the introduction of a farm incentive programme to reduce antibiotic use in pigs that will be expanded to poultry and the promotion of disease prevention and alternative treatments, both as part of Cyprus' strategic plan for the Common Agricultural Policy (CAP) 2023–2027.
Czechia	VMPs can be distributed by wholesalers to other wholesalers, veterinarians, pharmacies, farmers, and feed mills. Feed mills can sell medicated feed containing antimicrobial VMPs only to farmers with the corresponding prescription. Manufactures and wholesalers report their sales data on a quarterly basis using specific templates containing unique medicinal package IDs and that are provided by the Czechia Institute for State Control of Veterinary Biologicals and Medicines. The sales data of nationally authorised VMPs and parallel trade are then completed manually with sales of products on special license. In the	Delivery notes are the data source used in Czechia for antimicrobial use data collection for cattle, pigs, chickens and turkeys and are collected from veterinarians, who indicate the animal species and category. Datasets (using the same unique medicinal package IDs as for the sales data) are provided to the Institute for State Control of Veterinary Biologicals and Medicines for validation and inclusion in national statistics. Use data collection started in 2023.	Using national sales and use data, Czechia has developed a comprehensive AMR strategy including three AMR National Action Plans, long-term national AMR policy development, legislative amendments, and sector-specific measures (e.g. an improved pig vaccination programme, inclusion of cattle disease and VMP use tracking software in farm management systems and AMEG-based antimicrobial guidelines for pigs, poultry, and cattle). New legislation has enforced prudent use of critical antimicrobials and use data collection has enabled species-specific monitoring, particularly for AMEG B antimicrobials. The data have also informed residue monitoring risk assessment, targeted workshops for

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
	process, measures are taken to avoid double reporting and to crosscheck the reported data.		veterinarians and other animal sector professionals, environmental studies, and One Health awareness campaigns. In 2024, AMR pathogen monitoring was updated to reflect recent antimicrobial use patterns observed across animal categories.
Denmark	MAHs distribute VMPs to wholesalers, who may also import or export. All VMPs exit the distribution system through pharmacies, including premixes sold to medicated feed producers. Pharmacies are required to report all medicinal product sales electronically, using barcode scanning for precise package identification and traceability. Sales data submission is managed by the Danish Medicines Agency.	Since 2000, VetStat is the system used by Denmark to collect antimicrobial use data based on sales data from pharmacies, feed mills, and veterinarians using prescription data. Minor modelling is required for ESUAvet reporting, including mapping product IDs and regrouping age categories using farm data from the Central Husbandry Register system. The Danish Veterinary and Food Administration (DFVA) is responsible for use data submission.	The DFVA promotes prudent use through species-specific guidelines and the Yellow Card system, which sanctions pig producers with high antimicrobial use since 2011. Collaboration with universities and national institutes supports surveillance and policy development, including AMR action plans and a targeted 8% reduction in antimicrobial use for pigs. More information on these initiatives and action plans can be found here.
Estonia	VMPs are supplied by wholesalers and can be dispensed to animal owners by pharmacies and veterinarians. Sales data are collected quarterly at package level by the State Agency of Medicines. To avoid double reporting, only sales from wholesalers to end users are considered.	Since 2023, veterinarians report antimicrobial use via a national database developed by the Agriculture and Food Board. The system is the same for all species and use data are collected in units and converted to packages.	The Estonian national AMR Action Plan for veterinary medicine was launched in 2015 and is updated regularly. The current version includes an assessment of antibiotic use by animal species and AMEG category. Antimicrobial sensitivity testing is mandatory before use of 3rd- and 4th-generation cephalosporins in food-producing animals. Since 2006, the Estonian State Agency of

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
			Medicines has collected comprehensive sales data for human and veterinary medicines under the Medicinal Products Act. Results are published annually online and in the Agency's Statistical Yearbook.
Finland	Wholesalers supply pharmacies and veterinarians, who may dispense medicines for animals under their care without profit. Medicated feed is produced domestically in feed mills or imported. Sales data are collected biweekly from the three main wholesalers and annually from the rest upon request, and matched with product data using Nordic package numbers (VNR). Sales of products on special license are manually picked by name. Sales data have been collected since 1995 and is managed by the Finnish Medicines Agency.	The use data collection system has been in place since April 2022 and the data are collected by the Finnish Food Authority. Most antimicrobial use data are transferred directly from veterinary practice management systems. Around 10–15% of the data are manually entered by veterinarians via a user interface provided by the Finnish Food Authority.	Finland has maintained low antimicrobial use in animals due to long-standing policies since 1949, an overview of which can be found here. The 2024–2028 AMR national action plan revises existing recommendations and is supported by an annual implementation plan. The 2025 plan targets emerging AMR infections in human healthcare, prioritising MRSA and is supported by a two-year project to identify LA-MRSA sources in healthcare settings and to organise awareness campaigns for veterinarians and farmers.
France	Wholesalers supply pharmacies and veterinarians. Medicated feed is produced by feed mills. Sales data are collected annually from marketing authorisation holders, who report the number of units sold per package to French Agency for Veterinary Medicinal Products (ANMV) as part of the	In March 2023 the CalypsoVet IT use data collection system was launched. Data can be transmitted automatically from veterinary practice management software or via a module developed for manual entry. Feed mills may also upload pre-formatted spreadsheets. Data are managed by ANMV-ANSES at	France has significantly reduced antibiotic use in animals through collective stakeholder action, beginning with the EcoAntibio plan in 2011. Regulatory measures, including restrictions on critical antimicrobials, a second action plan and updated treatment guidelines have supported this progress. The third EcoAntibio plan, launched in 2023,

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
	French Agency for Food, Environmental and Occupational Health & Safety (ANSES) for monitoring purposes.	package level, including conversion of medicated feed quantities into premix packages.	aims to maintain low usage in farm animals, reduce exposure of dogs and cats by 15%, and promote rational use of other antimicrobials and antiparasitics. A new Interministerial roadmap published in 2024 aims to structure existing resources and strengthen the One Health approach.
Germany	Veterinarians may dispense drugs for the treatment of animals under their care and are supplied with VMPs by either pharmaceutical companies (MAHs) or wholesalers. Sales of antimicrobial VMPs by public pharmacies require a prescription from a veterinarian. Sales data are collected annually. The system has been implemented since 2011 and is managed by the Federal office of Consumer Protection and Food Safety (BVL). MAHs and wholesalers are legally obliged to report their data of the relevant VMPs to veterinarians and other recipients e.g., pharmacies and feed mills which are located in Germany. The sales data is submitted electronically via XML files of a defined format through a web application and is then processed further.	Veterinarians report antimicrobial use in animals by means of a national software system, originally built for antibiotic benchmarking in 2014. Reports are submitted electronically via web forms, APIs, or CSV uploads, though not all practice software supports the latter. Data are reported at treatment level and must be assigned an animal category, product and pack size. The amount used is converted to number of packs by the BVL using the national medicinal product database.	Germany's AMR efforts are guided by the national strategy DART 2030, adopted in 2023, building on DART 2020 and aligned with WHO's Global Action Plan. Under Regulation (EU) 2019/6 and the Veterinary Medicinal Products Act (Tierarzneimittelgesetz, TAMG), Germany collects sales and use data and operates a benchmarking system for antibiotic use, extended in 2023 to include laying hens and dairy cows. Further legal measures promote prudent use, including mandatory susceptibility testing for critical antimicrobials. Other national efforts include publishing guidelines on responsible antimicrobial use and awareness campaigns on AMR across veterinary and agricultural sectors. Sales data is publicly available in a national dashboard.

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
Greece	MAHs or their local representatives supply VMPs to wholesalers and retailers. Wholesalers may also supply to retailers, but only retailers are authorised to dispense VMPs to customers. Sales and import data are submitted throughout the year by MAHs or their local representatives to the Greek Veterinary Medicinal Product Sales Submission System and the UPD. Data quality is cross-checked by the National Organization for Medicines (EOF) before final submission to the ASU Platform.	For 2023 and 2024, antimicrobial use data were collected manually from farm treatment registers, which did not fully support the reporting of data per animal category. A national veterinary electronic prescription system became operational on 1 January 2025 and will support a more comprehensive data collection in upcoming data calls. Use data reporting is managed by the Ministry of Rural Development and Food.	Greece operates an AMR surveillance framework involving key national and academic institutions, which aims to reduce antibiotic consumption, raise awareness, and promote alternative treatments. Key initiatives against AMR include publication of national action plans that follow a One Health approach and contain measures such as strict prescription rules; a strict legislative framework for the supply and use of antibiotics in food-producing animals; and guidelines for prudent use in animals. The recent implementation of electronic prescriptions for veterinary medicines is expected to enhance surveillance and control of AMR.
Hungary	VMPs are supplied by government-approved wholesalers to authorised retailers who can sell to veterinarians, farmers or feed mills. All sold VMPs must be traceable from manufacturer to farmer. Medicated feeds must be produced by authorised feed mills or imported under official supervision. Sales data are submitted electronically by wholesalers once a year and managed by the Hungarian National Food Chain Safety Office (Nébih/NFCSO).	Veterinarians report antimicrobial use data monthly since 2022 via a national system also operated by the Nébih/NFCSO and which is synchronised daily with the national product database. Data can also be submitted via API from farm management software.	In Hungary, a legislative amendment adopted in 2021 introduced measures to promote prudent antimicrobial use in food-producing animals. Since January 2024, veterinarians require certification to prescribe antibiotics, obtained via a 2-day training course and valid for five years. At farm-level, prescription duration is limited to seven days if the antibiotic is to be administered directly by the animal owner. For AMEG category B antibiotics, resistance testing prior usage and on-site treatment efficacy verification by a veterinarian are

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
			mandatory. Large-scale farms must maintain a 'Plan for reduction of antibiotic use', which may be reviewed alongside treatment logbooks during targeted inspections. Additionally, experts from the NCA provide presentations and online training on monitoring practices and responsible antibiotic use to all relevant stakeholders.
Iceland	Veterinarians and pharmacies dispense VMPs to animal owners, sourced only from licensed wholesalers. There is no national production of medicated feed. Sales data are submitted monthly at package level by wholesalers in CSV format and uploaded into a central SQL database managed by the Icelandic Medicines Agency.	For cattle, veterinarians register antimicrobial use in a national database since 2012 which can be accessed by farmers via their electronic herd book systems. On the contrary, there is no electronic use data collection system for pigs, chickens and turkeys. For these species, veterinarians (for pigs) and farmers (for chickens and turkeys) are contacted annually to report the antimicrobial use in these species. Use data collection is managed by the Icelandic Food and Veterinary Authority (MAST).	Antimicrobial use in Iceland remains low across most sectors due to good animal health status, strong veterinary oversight and prudent use policies. The aquaculture sector has grown significantly since 2011, with antimicrobials only being used for the first time in 2021, contributing to a recent increase in overall usage of these medicines. The 2025–2029 National AMR Action Plan was approved in May 2025 and includes a monitoring and evaluation framework following a One Health approach.
Ireland	Authorised wholesalers supply VMPs to veterinarians, pharmacists, and licensed retailers (for intramammary products). Medicated feed is prepared from	Farmers submit pig use data quarterly to the national pig AMU database, while the few veterinary practices serving the poultry industry report data for chickens and turkeys. The DAFM receives anonymised, bulk data, and	Ireland's AMR efforts include a national database (AMU pig) launched in 2019 to benchmark antimicrobial use on pig farms, the national mastitis programme 'Cellcheck' for dairy cows, national disease control and biosecurity strategies, (e.g. the National

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
	authorised premixes by licensed feed mills or on-farm mixers. Sales data are submitted by MAHs via the UPD. These data are reviewed for gaps or inconsistencies by the Health Products Regulatory Authority (HPRA) and corrected in consultation with the MAHs involved. Sales of VMPs authorised under special import licence by the Department of Agriculture, Food and the Marine (DAFM) are also collected.	reformats it for ESUAvet reporting. A National Veterinary Prescription System came into force in 2025, which must be used to issue and dispense all prescriptions for food-producing animals. It will enable more accurate reporting for all animal species in future data calls.	Farmed Animal Biosecurity Strategy and Food Vision 2030) and other initiatives such as communication and education efforts targeting farmers and veterinarians. Together with legislative changes, these efforts have driven behavioural changes and reductions in antibiotic use. Also, the third One Health National Action Plan on AMR (INAP3, 2026–2030) will be launched in November 2025, promoting cross-sector collaboration through the Animal Health Implementation Committee, which oversees implementation of actions aligned with the revised six WHO strategic objectives.
Italy	VMPs must be sold in the presence of a pharmacist and with an electronic veterinary prescription. Direct sales may occur from authorised wholesalers to veterinarians and animal owners; or from MAHs, wholesalers or manufactures to farmers in the case of premixes. Veterinarians cannot sell VMPs. Since 2019, pharmacists report their sales data to a national IT VMP traceability system that integrates e-prescriptions and electronic records from food-producing animal owners.	Since 2022, it has been mandatory for owners to electronically record all medicines administered to food-producing animals, including those in medicated feed, using the national IT VMP traceability system. Use data are initially collected in units (e.g. ml, g) and then converted to packages.	The national IT VMP traceability system, in place since 2019, has contributed to a significant reduction in antimicrobial sales. The AMR National Plan integrates guidelines for prudent antimicrobial use across species, supported by the training and communication campaigns and a national annual report. Legislative Decree No. 218/2023 strengthens AMR control measures by prohibiting prophylactic use of AMEG category B antibiotics and requiring sensitivity testing for metaphylaxis usage. It also mandates training and awareness activities on prudent antimicrobial use

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
			among various organisations and associations.
Latvia	VMPs are sold by manufacturers, importers and wholesalers to pharmacies and veterinary practices, who then dispense to animal owners. Imports from other EU/EEA countries require a special permit issued by the Food and Veterinary Service (FVS). Sales data are submitted quarterly to the FVS by authorised manufacturers, importers, and wholesalers using a semi-automated system. Since 2021, a new system called VEZIRS is under development for automated sales data collection.	Latvia began developing the national eVETIS system for antimicrobial use data collection in 2021, but it remains in pre-launch phase due to technical and legislative challenges. Full-scale data collection will begin once legislation is adopted but due to regulatory delays, Latvia has faced difficulties collecting use data for 2023 and 2024. As an interim solution for both years, veterinarians at large chicken and turkey facilities submitted AMU data using Excel forms, validated by the FVS against wholesaler sales data for accuracy.	The Latvian Antimicrobial Resistance Limitation and Precautionary Antibiotic Use Plan 'One Health' (2023–2027) includes training for veterinarians and animal owners, expanded AMR monitoring in animals, and the development of an automated use data collection system for VMPs. Ongoing risk assessment projects include studies on the spread of antibacterial residues in meat of Latvian origin and on AMR in zoonotic agents and indicator bacteria on Latvian cattle and pig farms. The Nord-Balt project BALTOHOP on AMR was completed in September 2025.
Lithuania	Wholesalers distribute VMPs to veterinarians and veterinary pharmacies. Veterinarians may sell VMPs directly to animal owners. Sales data are collected annually from authorised wholesale distributors and submitted to the State Food and Veterinary Service (SFVS) at package level.	Since 2023, veterinarians submit use data via email using a standard template and the information is compiled by the SFVS. A national use data collection system that will enable comprehensive monitoring and reporting is currently under development.	Lithuania has launched various key initiatives to combat AMR: national antibiotic use and resistance surveillance programmes; comprehensive training programmes for veterinarians and farmers on AMR risks and best practices; public awareness campaigns aiming to educate consumers on responsible antibiotic use; promotion of antibiotic stewardship through guidelines and best practices for farmers and veterinarians; technological innovations such

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
			as precision farming and e-prescriptions systems; strict regulatory control on the prescription and administration of antimicrobials; and international cooperation to align with EU and WOAH AMR policies. Since 2025, wholesalers must report farm-level antimicrobial sales to improve veterinarian-reported use data validation. Also in 2025, a public web-based interactive map was launched to display updated AMR patterns across the country by bacterial species and antimicrobial class, to support evidence-based decision making and to raise awareness on AMR dynamics.
Luxembourg	Wholesalers distribute VMPs to pharmacies or veterinarians (who order via a pharmacy). Veterinarians may stock VMPs and dispense them to animal owners. All registered wholesalers report their sales data using a template that includes all antimicrobial VMPs authorised nationally as well as additional products from neighbouring countries that are commonly used in Luxembourg. The Division of Pharmacy and Medicines of the Ministry of Health consolidate these data and transfers them to the ASU sales template.	Since 2023, veterinarians report the use of antibiotics by animal species via a web application developed and provided by the Luxemburgish Veterinary and Food Administration of the Ministry of Agriculture, Food and Viticulture. Data are partially collected in the corresponding unit then converted into packages if necessary and manually transferred into the appropriate reporting template. Improvements in the collection system of used antimicrobials are foreseen for the following year.	The Luxembourg National Antibiotics Plan (PNA, 2018–2022) aimed to reduce AMR through a 'One Health' approach by establishing governance mechanisms, setting up monitoring systems, building partnerships with national and international organisations, running awareness campaigns, issuing treatment recommendations, providing training and technical support and mandating external evaluation to measure impact.

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
Malta	VMPs are distributed by authorised wholesalers. Authorised feed mills and feed business operators may supply farms directly with medicated feed. Sales data are collected from wholesalers and feed mills, validated by the Veterinary Medicines Unit of the Veterinary Regulation Directorate and cross checked against data collected from veterinary pharmacies for auditing purposes.	Since 2023, use data is collected from both electronic and paper prescriptions issued by veterinary surgeons in the same way for all animal species. If data are recorded in units, it is subsequently converted into packages. Use data collection is also managed by the Veterinary Medicines Unit.	Malta's AMR initiatives are focused on rigorous antimicrobial sales and use data collection and extensive information campaigns targeting farmers, veterinarians, and pharmacists. The national AMR Strategy and Action Plan (2020–2028) outlines objectives across legislation, stewardship, surveillance, infection prevention, education, research, performance monitoring, and international collaboration. In 2024, new Subsidiary Legislations were published to regulate VMPs, medicated feed and veterinary pharmacy operations.
Netherlands	VMPs are distributed by MAHs, most of whom are affiliated with the Dutch federation of the veterinary pharmaceutical industry (FIDIN), to wholesalers and to veterinarians directly. Veterinarians dispense these products to animal owners. Sales data from MAHs are centrally collected in a national database established for monitoring distribution and reported to EMA by the Netherlands Veterinary Medicines Institute (SDa).	Veterinarians must record all antibiotic prescriptions in government-assigned databases. All VMP packages are uniquely identified by EAN-codes. Annually, the SDa receives antimicrobial use data from these databases to analyse and publish them in SDa reports following a standard operating procedure.	Since 2011, the Netherlands has monitored antibiotic use in livestock using the number of defined daily doses animal (DDDA) per animal-year indicator. The SDa sets benchmark values and farms or veterinarians exceeding action levels are obliged to adjust their practices. Sector-specific studies identified critical success factors to guide improvements. In 2023, monitoring was expanded to include 10 additional animal sectors. The country has had a national antibiotic policy since 2008, with the latest national action plan published in June 2024. Annual reports are submitted to parliament detailing policy outcomes.

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
Norway	Authorised wholesalers distribute VMPs to pharmacies and feed mills (for the production of medicated feed for farmed fish), which supply veterinarians, fish health biologists, and animal owners. Sales data at package level are submitted by wholesalers and feed mills to the Norwegian Public Health Institute (NPHI) and then subsequently used by the Norwegian Veterinary Institute for reporting to EMA.	Managed by the Norwegian Food Safety Authority, the veterinary prescription registry (VetReg) was established for farmed fish in 2011 and for terrestrial animals in 2012. Reporting to VetReg is mandatory for veterinarians, fish health biologists, pharmacies and feed mills. All medicines dispensed by pharmacies for terrestrial animals and farmed fish must be reported, including those supplied to veterinarians for use in practice. Veterinarians must report all medicines used for food-producing animals (including horses), while reporting for companion and fur animals is voluntary.	Norway's National Strategy against Antibiotic Resistance (2015–2020) set targets to reduce antibiotic use by 10% in terrestrial food-producing animals and 30% in companion animals (using 2013 levels as reference), and to maintain or lower use in farmed fish compared to the 2004–2014 average. These targets were fully achieved, supported by regularly updated therapeutic guidelines from the Norwegian Medicines Authority and a joint action plan from the Norwegian livestock industry. In 2024, a new National One Health Strategy against AMR was published to cover 2024-2033. This strategy does not set further reduction targets but emphasises using VetReg data to assess future reductions or changes in the types of antibiotics used against certain bacteria in different animal species.
Poland	Wholesalers distribute VMPs to veterinarians and to medicated feed producers (in the case of premixes). Only veterinarians can dispense antimicrobial VMPs to animal owners. Sales data are collected quarterly from wholesalers, via CSV files uploaded to the National Veterinary Research Institute's IT system.	Poland currently collects data on antibiotic use in animals through mandatory electronic surveys conducted by veterinary inspectors on farms. The data are recorded in packages and collected consistently across all animal species. Work is underway on the implementation of a centralised use data collection system.	By Order No. 46 (November 2022), a team was established in Poland to combat AMR in veterinary medicine. The team develops policies, strategies, and a national action plan aligned with EU law, aiming to reduce antimicrobial use in animals and prevent resistance in both animals and humans. Since 2019, agricultural advisory centres have regularly held training for farmers on AMR risks. In 2023, veterinarians received

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
			training on reducing antibiotic use in poultry, cattle, and pigs. Since March 2024, as part of the "Animal Welfare" ecoscheme included in the Strategic Plan for the Common Agricultural Policy for 2023-2027, farmers have been trained on animal husbandry and breeding methods to further reduce antibiotic use in animal production.
Portugal	MAHs supply VMPs to wholesalers who distribute them to pharmacies, veterinarians, farmers, clinics, producer organisations and feed mills. Veterinarians cannot sell VMPs and may only charge for VMPs used during treatment. Premixes are distributed directly from wholesalers to authorised feed mills and then to farmers. Sales data are submitted by MAHs and wholesalers via a national reporting platform managed by the Portuguese National Authority for Animal Health (DGAV).	Starting in 2022, Portugal is progressively implementing an electronic prescription system (PEMV) that enables collection of antimicrobial use data in all animal species for all antimicrobial VMPs and medicated feed. Full coverage has yet to be achieved with this system as approximately 12.5% of prescriptions in 2024 were still issued manually or through non-integrated systems. This is expected to improve in upcoming years. Use data reporting is also coordinated by DGAV.	Portugal has launched several initiatives to promote prudent antimicrobial use in animals: 1) The One Health Project HubRAM, involving 15 partners, aims to create a national datahub for integrated surveillance and antimicrobial use monitoring, supporting data interoperability and cross-sector sharing. 2) The PEMV electronic prescription platform, implemented in 2022, ensures better control and monitoring of VMPs. 3) The National Action Plan (2019–2023) follows a one health approach to promote responsible antimicrobial use, with measurable objectives and a sectorial report. It is supported by voluntary reduction programmes in different species and annual public reports on veterinary antimicrobial consumption, which are publicly available via the Directorate-General for Food and Veterinary website.

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
Romania	Wholesale distribution is limited to authorised entities including veterinary pharmacies, clinics, feed mills, and animal-owning facilities. Retail sale is restricted to veterinary pharmacies. Animal owners may keep and administer antimicrobial VMPs under the supervision of a veterinarian. Sales data are submitted by MAHs to the UPD and crosschecked by the Romanian Institute for Control of Biological Products and Veterinary Medicines.	Since 2023, veterinarians submit antimicrobial use data to County Veterinary Sanitary Directorates, which centralise the information at county level before forwarding it to the Institute for Control of Biological Products and Veterinary Medicines for national aggregation and reporting.	The National Sanitary, Veterinary and Food Safety Authority (ANSVSA) collects annual AMR surveillance data on zoonotic bacteria and indicators from animals and food. In October 2023, the government approved the National Strategy 2023–2030 to prevent healthcare-associated infections and combat AMR. The strategy promotes sustainable improvements in public health by reducing AMR risks and encouraging the prudent use of antibiotics in both human and veterinary medicine.
Slovakia	Wholesalers distribute VMPs to pharmacies, veterinarians, military forces, other wholesalers and the State Veterinary and Food Administration (SVFA). Medicated feed must be produced by feed mills authorised by the Institute for State Control of Veterinary Biologicals and Medicines. Wholesalers submit their sales data quarterly using a national template managed by the Institute for State Control of Veterinary Biologicals and Medicaments of the SVFA.	Veterinarians are required to record all treatments of food-producing animals in treatment logbooks. Since 2012, they must report these data biannually by animal species and category via an electronic system provided by the SVFA, serving to centralise the data nationally. Currently, Slovakia is in the final phase of implementing an electronic treatment logbook system as part of a new comprehensive veterinary and food system.	Slovakia is preparing a national action plan to promote the prudent use of antimicrobials, supported by regular education for veterinary students, private veterinarians, and state veterinary officials. Training is coordinated by several bodies. Furthermore, the SVFA annually prepares a national training plan for veterinary inspectors and official veterinarians. The educational institute is the Institute for the Education of Veterinary Doctors in Košice (IVVL).

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
Slovenia	Wholesalers distribute VMPs to pharmacies and veterinary organisations. Since 2013, wholesalers are the legally designated entities required to report sales of all medicines to ensure full distribution traceability. Since 2023, the reporting of human medicine distribution was extended to pharmacies, which must now also report sales of these medicines to veterinary organisations. Sales data are collected from wholesalers who submit an Excel template to the national ZDPROM VMP traceability system, which has operated since 2013.	Since 2023, veterinary organisations are the legally designated entities required to report the use of antimicrobial medicines in the same manner for all animal species. Data can be reported as packages or units, which are then converted to packages.	Slovenia adopted the National One Health Strategy for the Management of Microbial Resistance (2019–2024), with an action plan for 2019–2021. The strategy promotes coordinated, cross-sectoral and interinstitutional efforts to reduce AMR across healthcare, veterinary medicine, agriculture, and the environment. A new national action plan with new initiatives and approaches is currently under development.
Spain	VMP suppliers in Spain are retailers, pharmacies and farmer cooperatives. They can dispense VMPs to end users under mandatory pharmacist control. Veterinarians may not sell VMPs to animal owners. Medicated feeds must be produced by authorised feed mills. Sales data are submitted by MAHs to the UPD and crosschecked by the Spanish Agency for Medicines and Medical Devices (AEMPS).	In 2024 an automated use data submission system was launched by AEMPS that integrates APIs for direct reporting from pharmacy management systems and dispensers to a centralised database. Data are reported annually and mapped with UPD identifiers. The previously used web interface, ESVAC, is still available for manual data reporting.	Spain’s National Action Plan against Antimicrobial Resistance (PRAN), launched in 2014 and coordinated by AEMPS, adopts a One Health approach across six strategic areas: surveillance, stewardship programmes, infection prevention, research, training and communication. The national policy framework promotes prudent antimicrobial use through legislation, monitoring and surveillance systems and stewardship. The REDUCE programmes have now evolved into PROA in Animal Health (antimicrobial stewardship programmes), focusing on responsible use of

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
			antimicrobials. Current efforts are centred on enhancing the quality of antimicrobial sales and use data, strengthening pathogenic bacteria surveillance, and promoting species-specific treatment guidelines. Also, training initiatives and educational courses are being implemented to further support professionals involved in antimicrobial stewardship across the veterinary sector.
Sweden	VMPs may only be dispensed by pharmacies, who are supplied by wholesalers and MAHs. Only feed mills and farms authorised by the Swedish Board of Agriculture (SBA) may mix antimicrobial VMPs obtained from pharmacies in feed. Medicated feed for farmed fish is imported from Norway and Denmark, with VMPs sourced in the country of origin. According to the Swedish Medicinal Products Act, all sales of medicinal products must be reported to the Swedish E-Health Agency (SEHA) on a daily or monthly basis and data are stored in a database (FOTA). Detailed data on pharmacy sales of antimicrobial VMPs are shared with the Swedish Veterinary Agency (SVA) and SBA upon request,	Since 2023, the base model for collection of use data is that veterinarians submit data to SBA either via an API from their record-keeping system or via an SBA data reporting e-service. Veterinarians report the amount of product used, in the package size unit given in the SEHA product database. The amount used is then converted into the corresponding number of packages. The base model has been applied for cattle, chickens and turkeys. Due to low coverage, an alternative use data collection model is currently applied for pigs, where the number of packages of antimicrobial VMPs prescribed for pigs and dispensed from pharmacies is reported.	Sweden's updated AMR strategy (2020) builds on decades of inter-sectoral collaboration. The need for antimicrobials is reduced through, for example, biosecurity, disease-control programmes and optimised management and husbandry. In addition to the EU-regulations, national regulations restrict mupirocin and rifabutin use in animals. Furthermore, 3rd generation cephalosporins, quinolones and colistin may only be prescribed when other antibiotics are not applicable. There are also legal requirements for Infection prevention and control (IPC) in animal health care. Species-specific prudent use guidelines are available for veterinarians. More information on Sweden's work against antimicrobial resistance, including the One

Country	VMP distribution system and sales data collection	Use data collection	AMR policies
	either as Excel files or through direct data transfers from FOTA to their databases.		Health perspective can be found on the websites of the SBA, the SVA and the Public Health Agency of Sweden.

Annex 8. Abbreviations and definitions

AMEG categorisation – EMA's antimicrobial categorisation system developed by the Antimicrobial Advice ad hoc Expert Group categorisation and published in 2019. It categorises antimicrobials based on their importance in veterinary medicine, the probability of AMR transfer from animals to humans, and the WHO Critically Important Antimicrobial List for Human Medicine (6th revision).

AMEG category A (avoid) – The category includes those antimicrobials that are not authorised as veterinary medicines in the EU and, consequently, should not be used in food-producing animals but may be given to companion animals under exceptional circumstances[78].

AMEG category B (restrict) – Antimicrobials in this category are critically important in human medicine and use in animals should be restricted to mitigate the risk to public health. These should be considered only when there are no antibiotics in categories C or D that could be clinically effective. Use should be based on antimicrobial susceptibility testing.

AMEG category C (caution) – Antimicrobials that should be considered in the treatment of animals only when there are no antibiotics in category D that could be clinically effective. Alternatives in human medicine exist for antibiotics in this category.

AMEG category D (prudence) – Antimicrobials that are first line treatments in animals, whenever possible. These should always be used prudently, only when medically needed.

AMR – Antimicrobial resistance. It means the ability of micro-organisms to survive or to grow in the presence of a concentration of an antimicrobial agent which is usually sufficient to inhibit or kill micro-organisms of the same species, as per Article 4(11) of Regulation (EU) 2019/6.

Antibiotic – any substance with a direct action on bacteria that is used for treatment or prevention of infections or infectious diseases (Article 4(14) of Regulation (EU) 2019/6).

Antimicrobial – any substance with a direct action on micro-organisms used for treatment or prevention of infections or infectious diseases, including antibiotics, antivirals, antifungals and antiprotozoals (Article 4(12) of Regulation (EU) 2019/6).

ASU Platform – antimicrobial sales and use web interface developed by the Agency to allow MSs to report, validate, verify and amend their data on volume of sales of VMPs, use of antimicrobial medicinal products in animals and animal population data by electronic means and in a timely manner.

ATC – Anatomical Therapeutic Chemical classification system.

ATCvet – Anatomical Therapeutic Chemical classification system for veterinary medicinal products.

CVMP – Committee for Veterinary Medicinal Products.

Denominator (animal biomass) – For the purpose of this document, proxy for the animal population likely to be treated with antimicrobials within a reporting year, expressed as animal biomass (kg) per year and calculated based on a combination of the number of animals slaughtered during the data collection period and of the number of live animals present in a country at a given point during the data collection period, multiplied by standardised animal weights. For food-producing animals, this includes the total biomass of food-producing animal species that could potentially be treated with antimicrobials. For other animals kept or bred, it includes the biomass of dogs, cats and fur animals,

[78] Many substances from this category are included in the list of substances reserved for treatment of certain infections in humans, as per Commission Implementing Regulation (EU) 2022/1255.

but excludes other non-food-producing species. For **use data**, the denominator reflects the biomass of the specific species for which use was reported.

ECDC – European Centre for Disease Prevention and Control.

EEA – European Economic Area.

EFSA – European Food Safety Authority.

EMA – European Medicines Agency.

ESVAC – European Surveillance of Veterinary Antimicrobial Consumption project, formally ended in November 2023 with the publication of its final report.

EU – European Union.

HMP – Human medicinal product.

Indicators – In the context of this document, a measure of (animal) exposure to antimicrobials; it consists of a numerator derived from sales or use data and a denominator which represents the biomass of animals or the number of animals likely to be treated with antimicrobials in the year for which the data on sales or use are reported.

Mandatory scope – In the context of this report, the mandatory scope refers to the antimicrobial medicinal product's ATCvet (for VMPs) or ATC (for HMPs) codes for which countries must collect and report sales and use data to the Agency, as per Article 1 and Article 3 of Commission Delegated Regulation (EU) 2021/578, respectively. The antimicrobial substances in the medicinal products that fall under the mandatory scope as outlined in the Annex of the delegated act, points 1 and 3, are antibacterials, antiprotozoals with antibacterial effect, intramammary antimycobacterials, and antiinfective agents, all of which have antibiotic activity.

Numerator – In the context of this report, the quantity of antimicrobials sold or used in animals expressed in units of weight of active substance and used for calculation of indicators.

PCU – Population Correction Unit, established as a denominator for the sales data in the ESVAC project to normalise the total quantities of antibiotic active substance sold in each country by the animal population that could be potentially treated with these in each country. The PCU only includes food-producing animals, including horses and farmed fish and 1 PCU unit is equivalent to 1 kg of animal biomass.

Product form – specific groupings of authorised pharmaceutical forms that take into consideration the route of administration and the intended site of action.

SMS – Substance Management Services (EMA).

SPOR – Substance, Product, Organisation and Reference (SPOR) data management service (EMA).

UPD – Union Product Database (EMA).

VMP – Veterinary medicinal product.

Voluntary scope - In the context of this report, the mandatory scope refers to the antimicrobial medicinal product's ATCvet (for VMPs) or ATC (for HMPs) codes for which countries may collect and report sales and use data to the Agency, as per Article 2 and Article 4 of Commission Delegated Regulation (EU) 2021/578, respectively. The antimicrobial substances in the medicinal products that fall under the voluntary scope as outlined in the Annex of the delegated act, points 2 and 4, include antivirals, antifungals, topical antibacterials, antiprotozoals, antiinfectives and antimycobacterials for systemic use.

Withdrawal period – The time that must elapse between the last administration of a veterinary medicine and the slaughter or production of food from that animal, to ensure that the food does not contain levels of the medicine that exceed the maximum residue limit.

WHO – World Health Organization.

WOAH – World Organisation for Animal Health.

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