Activities and achievements regarding the reduction of antibiotic use and antibiotic resistance in animals in Belgium 2021-2024

Table of contents

Background

Antimicrobial resistance (AMR) is a global issue for public, animal and environmental health in which scientists, policymakers and everyone involved in human and veterinary medicine have a stake. Antimicrobial resistance in microorganisms can mean that controlling these microorganisms is difficult to varying degrees and, in some cases, even impossible.

The use of antibiotics is the main cause of AMR. Reducing the use of antibiotics in animals is a shared responsibility of the sectors and authorities involved. Efforts are therefore necessary to ensure that all parties involved in veterinary medicine in Belgium develop and implement appropriate measures, step by step.

Summary

This report presents a summary of the main activities and achievements in reducing use of antibiotics, in the context of the second antibiotics agreement 2021-2024, by the various players in the veterinary sector. The report also publishes national sales figures for antibiotics and, based on data recorded in Sanitel-Med, the use of these products on farms. The results of the evolution of AMR in animals between 2011 and 2024 are also presented.

Following on from the first antibiotics agreement for 2016–2020, the second agreement for 2021–2024 set new ambitious targets to be achieved by the end of 2024. The federal authorities and the sectoral organisations concerned ensured that the commitments already made in the first agreement would be continued, and that new initiatives to achieve the objectives of the second agreement would be developed. **2024 was the final year of the second antibiotics agreement and 'Vision 2024' of AMCRA, meaning that the results achieved during the most recent period can now be assessed. Of the four reduction targets for veterinary medicine in Belgium set out in Vision 2024 and in the antibiotics agreement, three have been achieved.** For the first of these, the result at the end of 2024 unfortunately cannot uphold the trend established at the end of 2023: total sales of antibiotics increased by 6.5%, resulting in an **overall reduction in antibiotic sales of 59.9% compared to 2011**, thereby falling short of the target reduction of 65%. **Sales of medicated feed fell by a total of 89.1%, far exceeding the 75% reduction target set for 2024. Sales of critically important antibiotics fell by 81.0% compared to 2011, thereby achieving the 75% reduction target for 2024.** In 2024, sales of **colistin** amounted to 0.69 mg/kg of biomass. Although this figure represents an **increase of 11.8% compared to 2023**, the **target ceiling of 1 mg/kg for 2024 was still comfortably achieved**. And compared to 2012 (the year before ZnO was authorised), the total reduction in colistin use was 85.4%.

For **pigs**, **broilers** and **veal calves**, specific targets were set based on data recorded in the Sanitel-Med national data collection system on **antibiotics used in livestock**. In 2024, significant progress was made for pigs, except in the category of fattening pigs. Antibiotic use in each category of pigs was in the green zone for more than 50% of farms (sometimes up to 75% of them), while use in the red zone was only observed in 3 to 8% of farms. **The pig sector is encouraged to maintain the current results over the coming years and to find ways to encourage and support the remaining intensive users to reduce their use of antibiotics. In 2024, the broiler sector once again saw a sharp decline** in antibiotic use, by more than 60% in most parameters. Whereas in 2018, around 30% of broiler farms had

consumption above the current action value, today this figure is just 1.5%. More than 85% of farms are even below the current vigilance value. **This illustrates the sector's capacity to reduce its consumption without a reduction pathway, although this may also suggest that there is sufficient margin to introduce more ambitious threshold values.** In the veal calves sector, the reduction achieved in 2024 was less pronounced than for other species. The results once again highlight the challenges the sector will face in reducing its high structural demand for antibiotics.

The second agreement, covering the period 2021–2024, had the ambition of developing a methodology for assessing antibiotic use in **pets** and, after collecting the relevant data, to establish a pathway for reducing antibiotic use in pets based on evidence and in line with the reduction targets of the agreement. AMCRA collaborated with stakeholders to draft an opinion: "Collection and analysis of data on the use of antibiotics in pets and horses and benchmarking of veterinarians". This opinion was submitted to the Federal Agency for Medicines and Health Products (FAMHP) and other federal administrations in 2025. At the same time, the FAMHP is developing the VAMREG tool to make it possible to communicate data on the sale and use of antibiotics in veterinary medicine for animals not registered in Sanitel (including pets) to the EMA, as required by the EU. Data collection and the development of a reduction pathway in a later phase will start in agreement with stakeholders to meet EU reporting requirements.

The results of **antibiotic resistance monitoring** in the Gram-negative indicator bacterium *E. coli* from food-producing animals show a decrease in resistance since monitoring started. For the Gram-positive indicator bacteria *E. faecalis* and *E. faecium*, a decrease in the occurrence of multidrug-resistance has been observed since monitoring started in 2019 for the two categories of animals with the highest multidrug-resistance rates (broilers and calves), while the situation remains stable for other animal species. **To prevent the selection and spread of antibiotic resistance, it is necessary not only to focus continuously on limited use of critically important antibiotics, but also reduce the use of all classes of antibiotics.**

Encouraged by the positive results achieved for three of the four reduction targets, **the federal authorities and relevant sectoral organisations have undertaken to continue down the same path and tackle the challenges that still lie ahead, in order to achieve further reductions by 2030**. **This commitment is reflected in the third agreement on antibiotics, currently being prepared, which will include new and ambitious targets for 2030, based on the Vision 2030 developed by AMCRA for the period 2025-2030.** Work is also underway on a new national **"One-Health" action plan to combat antimicrobial resistance.**

Agreement 2021-2024 on the responsible use of antibiotics in animals, between the federal authority and all partners, with a view to combating antimicrobial resistance

The second agreement was signed in early 2021 by the federal authority, represented by the Ministers of Public Health and Agriculture, the pharmaceutical industry (pharma.be), agricultural organisations (ABS, Boerenbond and FWA), the compound feed industry (BFA), sectoral organisations (Landsbond Pluimvee and VEPEK), veterinary associations (UPV, VeDa, SAVAB-Flanders), the regional councils of the Order of Veterinarians (CRFOMV and NGROD), animal health associations (ARSIA and DGZ), managers of sectoral guides and specifications (Belplume, Belpork, BVK, Belbeef, Codiplan, MilkBE), the AB Register and AMCRA.

The text included four strategic objectives that corresponded to the **reduction targets** set out in AMCRA's "Vision 2024":

1. a maximum overall antibiotic use of 60 mg/PCU by the end of 2024, which corresponds to a 65% reduction compared to 2011[1];
2. maximum colistin use of 1 mg/PCU by the end of 2024;
3. a 75% reduction in the use of antibiotic-containing medicated feed by the end of 2024 compared to 2011;
4. at a minimum, every year, maintaining the 75% reduction already achieved compared to 2011 in the use of critically important antibiotics (3rd and 4th generation fluoroquinolones and cephalosporins).

For food-producing animals, and in particular veal calves, pigs and broilers, **strategic targets** had been set **specifically for each species**, with the aim of having a maximum of 1% of users in the alert zone for each animal category by the end of 2024.

For **pets**, the objective was to start developing a method for assessing antibiotic use in these animals and, after collecting the data on which the assessment will be based, devising a pathway for reducing antibiotic use for this category of animals, based on robust data and meeting the reduction targets set out in the agreement.

[1] The data from the BelVet-Sac annual reports, expressed in mg of active substance per kg of biomass, are used to calculate the strategic targets; the Sanitel-Med data are used to calculate the sectoral targets.

Achievements following the commitments made by member sectors and authorities in the context of the 2021-2024 antibiotics agreement

As part of the antibiotics agreement, the federal authority, AMCRA and the relevant sector partners have set out common operational objectives. This document presents some of the key achievements of each relevant sectoral partner and the federal authority, which were started or completed in 2024.For more information and a detailed description of all achievements, please refer to the respective organisations.

Federal authority

Since 2012, the federal administrations have been working closely together on policy regarding animal antibiotics, to support the sectors in the fight against antimicrobial resistance and to protect human and animal health. In this regard, AMCRA is a trusted partner, providing advice and support to the sectors, among other things by organising training courses. Since 2016, cooperation between the federal authorities and the sectors has been enshrined in an agreement on antibiotics ("AB Agreement"), and in 2021, the actions of the administrations were included in the "One-Health National Action Plan for the fight against antimicrobial resistance" (NAP AMR), which has been validated both politically and financially. As the deadline for the AB Agreement 2021-2024 and the NAP AMR, 2024 was an important year and a wide range of actions were therefore undertaken by the federal administrations.

Benchmarking reports for farmers and veterinarians and the Barometer on Antibiotic Use in veterinary medicine are produced on behalf of the FAMHP by AMCRA's data analysis unit and are based on data from Sanitel-Med, the database of the Federal Agency for Medicines and Health Products (FAMHP). The analysis reports are produced in consultation with the sectors and are used at regional and federal level for antibiotic policy aimed at tackling AMR. Work continued in 2024 to harmonise the reports, including for cattle.

On 17 December 2024, a Royal Decree was published on the prevention and control of antimicrobial resistance in animals. This decree lays down reference thresholds for classifying farms into green, yellow and red zones, imposes measures on farms located in yellow or red zones and regulates the terms and conditions of mandatory support. Since 2025, the Sanitel-Med benchmarking reports have provided the data necessary to comply with the Royal Decree of 17 December 2024.

To support the implementation of this decree, training courses for veterinarians wishing to be accredited as AR coaches were organised on behalf of the FPS Public Health, Food Chain Safety and Environment (FPS HFCSE); 15 veterinarians in Wallonia and 60 in Flanders took part. Since then, the list of accredited AR coaches has grown to more than 30 veterinarians. In 2024, veterinarians working on pig, veal calf, laying hen, broiler and cattle farms received compensation for the support they provided to these farms between 2022 and 2024 as front-line coaches for the sensible use of antibiotics. In 2024, the FPS HFCSE also had stakeholders evaluate the awareness campaign "Parlons antibiotiques'' (Let's talk about antibiotics), launched in 2022, in order to optimise the impact of subsequent campaigns, and various actions were implemented with a view to developing the NAP AMR OH 2026-2029. Activities that are part of the EU's JAMRAI 2 project, for which the FPS HFCSE is the coordinator for Belgium, have started. Various aspects of the fight against AMR (awareness-raising, monitoring, infection prevention and control, antimicrobial stewardship, etc.) have been the subject

of a collaborative study by the relevant federal administrations and various Belgian and European partners, in an international "One Health" context, with a view to making recommendations for optimising the national action plans.

The biosecurity assessment application, managed by ARSIA and DGZ and funded by the Federal Agency for the Safety of the Food Chain (FASFC), is still used every year by the pig and poultry sectors in the context of biosecurity audits, with the aim of reducing the risk of infection and therefore the use of antibiotics.

Since September 2024, the conditions for using critically important antibiotics stipulated in the Royal Decree of 21 July 2016 have been extended to all animal species (see (French/Dutch only) the "Regulations on the use of antibiotics in animals" on the FAMHP website).

The FAMHP has split the "VetAMR" tool into two parts: "VetAMSales" and "VAMREG". Launched in December 2024, "VetAMSales" is used to collect data on antibiotic sales in Belgium from marketing authorisation holders and compound feed manufacturers (for the BelVet-Sac report and for reporting to Europe). The FAMHP is developing VAMREG to allow Belgium to report data on the sale of antibiotics for animals and on the use of antibiotics in veterinary medicine in animals not registered in Sanitel (aquaculture, horses, dogs, cats, fur animals and others) to the EMA, as required by the EU. Collecting data from veterinarians with a depot and pharmacists will also make it possible to record antibiotics purchased directly abroad, which is not the case with data collection at a higher level.

The FAMHP has organised consultations, "Farma Vetconsults", similar to the "Vetconsults" organised by the FASFC, in order to consult regularly with representatives of veterinary organisations and the Order of Veterinarians.

As we will see below in this activity report, both the FAMHP and the FASFC have continued their monitoring activities for antibiotic use and antibiotic resistance respectively (going beyond the EU requirements). The results are encouraging, thanks to the efforts of the various sectors, but also of

farmers and veterinarians. Despite a challenging economic climate, they have once again demonstrated their ongoing commitment to the fight against antibiotic resistance. The federal authorities will continue to place importance on the cooperation with the relevant partners in implementing the 2025-2029 antibiotics agreement and the 2026-2029 NAP AMR.

Compound feed industry

The feed industry remains actively committed to implementing a sustainable antibiotic policy. The industry achieved an impressive 88% reduction in the use of feed containing antibiotics achieved in 2024, compared to the reference year 2011. To build on this reduction, members of the **BFA** made a joint commitment to completely phase out the production of antibiotic-based medicated feed by the end of 2026. This decision is widely supported by the sector and underlines the latter's commitment to contributing to a responsible approach to the use of antibiotics.

In 2024, the focus was therefore on targeted communication and raising awareness among veterinarians and farmers about the forthcoming phase-out of animal feed containing antibiotics. The BFA has called on veterinarians and farmers to swiftly implement alternative strategies, take preventive health measures and appropriate farm management practices so that they can phase out the curative use of antibiotic-based medicated feed by the end of 2026.

With this approach, the animal feed sector has clearly undertaken to make the transition possible and successful by the end of 2026, in close collaboration with all partners involved in the chain.

Pharmaceutical industry

Pharma.be, the Belgian umbrella organisation for (bio)pharmaceutical companies, represents 13 companies through its "Santé animale'' (Animal Health) group that offer veterinary medicines and animal health solutions on the Belgian market. This sector acknowledges its responsibility in the fight against antimicrobial resistance (AMR) and has been actively involved in promoting sustainable antibiotic policies for over a decade. It encourages the development of new antibiotics and pursues a policy of ensuring the effectiveness and availability of antibiotics for humans and animals, embodying the 'One Health' principle. Pharma.be is permanently represented on AMCRA's administrative body, helping to draft guidelines and raise awareness on the appropriate use of antibiotics in animals.

The members of Pharma.be take responsibility by providing veterinarians with accurate information on the use of the antimicrobial products they sell. This is through scientific training, clearly and uniformly labelled information (see label below) and supportive advice on biosecurity, diagnosis and preventive measures. In so doing, they help convey the AMCRA's message: let us use antibiotics responsibly.

For the future, pharma.be wants to continue investing in innovation, particularly in vaccines, rapid diagnostics and alternatives to antibiotics. The organisation also advocates for a thought-provoking policy that supports research and development of new therapies. In collaboration with policymakers, veterinarians and other stakeholders, pharma.be continues to build a future where antibiotics will remain effective – in the interests of animal health, public health and sustainable livestock farming.

Veterinary organisations

UPV, Savab Flanders and VeDa:

- Active representation on the AMCRA administrative body
- Participation in various working groups (collecting data on pets and horses, reduction pathways for pigs, poultry and veal calves)
- Dissemination of articles via websites, Veterinaria, Vedascoop, Savab Flanders web page
- Participation in the public event on antibiotics and antibiotic resistance held in June
- Participation in postgraduate training courses on the use of antibiotics in the small and large pet sector
- Support for the AMCRA stand at the Libramont Fair and the Agriflanders trade fair

Agricultural organisations

ABS, Boerenbond and FWA:

We inform the farmers involved in our committees, working groups and local sections regarding developments in legislation and targets for reducing the use of antibiotics.

At the same time, through our training centre (courses A + B) in various course programmes, we present AMCRA and other animal health support structures.

As representatives of livestock farmers, it is essential for us to ensure that the best treatment options for animals are kept in place and that the administrative burden associated with the use of medicines, whether antibiotics or not, is limited.

This is by permanently promoting the best available techniques to limit the use of ABs to cases where they are really necessary.

Specifications managers and sector guide managers

In 2024, the **non-profit organisation Belpork** continued the gradual approach it had already implemented for farms with significant and long-term antibiotic use. To this end, the organisation continued to refine its coaching for BePork farms, always in close consultation with all parties concerned. In addition, in collaboration with AMCRA and AB Register, the specific reporting for farms was adjusted in line with the reduction targets laid down. The efforts to raise awareness among pig farmers of the importance of complete and accurate record-keeping were continued. Every quarter, shortly before the farm reports are drawn up, member pig producers receive a final reminder inviting them to check their records. Finally, there was reflection on which antibiotic policy should be adopted within the BePork quality system for the period 2025-2030.

CodiPlan: Following the amended Royal Decree of 21 July 2016 (mandatory recording of ABs in cattle and all types of poultry) and the consequent adaptation of guide G-040, the focus in 2024 was on checking the quality and completeness of antibiotic records for the animal species concerned, through audits for the primary animal production sector guide. The auditors were given instructions on correctly interpreting the applicable standard.

Belbeef: The discussions with IKM/QFL/QMK, AB Register, Bigame, AMCRA and the FAMHP on the possibilities for a joint benchmarking report for cattle (beef cattle and dairy cattle) were successfully concluded. The first benchmarking reports on the use of antibiotics in cattle were therefore submitted to Belbeef farmers via AB Register and Bigame in 2024, where applicable for both their beef cattle and dairy cattle if they were affiliated with both Belbeef and IKM. In addition, the OCI (Certification and inspection bodies) were given instructions on the method for assessing the 'Registration of Antibiotics' criterion to be used when conducting audits of farmers, in particular to identify zero users.

Belplume: In collaboration with AB Register, 1,775 reports were sent to poultry farmers who are members of Belplume. After the analysis, 612 farmers had to take additional measures. 445 of these were given code yellow and had to submit an action plan online. This action plan consists of questions that must be answered based on the report on antibiotic use in their farm. 87 farms were in the red zone and had to draw up an action plan with the farm veterinarian, hatchery and feed supplier. Finally, four of these 'red' farms were required to get assistance from an AB coach. The implementation of these measures was actively monitored by the secretariat of Belplume. In addition, all veterinary practices active in the poultry sector received two benchmarking reports and a summary of their clients' antibiotic use. Belplume also conducted regular data checks, which resulted in a low number of error reports (only 70) in 2024.

Additional efforts were made in 2025 for code yellow farms, to bring them closer to the green zone.

MilkBe: 2024 was the first year that cattle farmers received a mixed milk/meat benchmarking report. The fact that mixed farmers now have an overview of their situation in a single document will make it easier for them to address their antibiotics use. To make this possible, MilkBE worked in close collaboration with Belbeef and the other partners involved over the past year. In addition, MilkBE also strengthened its commitment to combating antibiotic resistance through the IKM specifications. The obligation to discuss the benchmarking report with the farm veterinarian was extended to farms that had received an error report. Finally, once again this year, the sector report on the use of antibiotics in dairy farms was discussed with all stakeholders, in order to improve data quality in the future.

The **Belgian veal calf sector** submitted its "10-point plan on the rational use of antibiotics in veal calves" for in-depth evaluation. On the one hand, it was concluded that a number of the recommended measures had now become general good practice in veal calf farms, and should be maintained. On the other hand, the sector needs to focus its efforts on veal calf farms with a red score in the benchmarking. In the summer of 2024, 'red' veal calf farms participating in the BCV programme were required to draw up a plan in collaboration with the farm's guidance veterinarian to improve their situation and submit this plan to the independent control body SGS. SGS was tasked with assessing the effectiveness of the improvement plans submitted, based on the benchmarking report of the results of farmers' antibiotic use in 2024. The optimisation of the benchmarking report for double muscled cattle (culard) farms was carried out in collaboration with AMCRA.

Animal health associations (DGZ - ARSIA)

DGZ-MCC-VIVEE

DGZ and MCC work with farmers, veterinarians, the public authorities and AMCRA to find sustainable solutions that protect public health, animal welfare and the environment. In 2024, we took various measures to further reduce the use of antibiotics.

- Farmers who want guidance on more responsible use of antibiotics and therefore want to mitigate the risk of antibiotic resistance on their farms can always contact the AB Coaching® team of experts of the DGZ.
- In 2024, dairy farmers received their **benchmarking report** for the fifth time, with information on the use of antibiotics on their farm (compared with that of other dairy producers). 2024 was also the first year that farmers with mixed farms (dairy cattle and beef cattle) received a mixed dairy and beef cattle benchmarking report. Based on these reports, farmers can work with their veterinarian to identify measures to improve management and prevent infections (and therefore the use of antibiotics).
- **Farm-Fit**, the farm monitoring platform developed by DGZ, now includes the digital version of the risk survey that has to be completed by poultry farms every year.
- Every year, the laboratories of the DGZ and MCC communicate the **results of the antibiograms** they have carried out, which provide useful information for veterinarians when it is not possible to perform an antibiogram. In addition, the information provided by **the analyses of tank and quarter milk samples by the MCC** helps dairy farmers maintain high quality standards for their milk production. To facilitate monitoring of the general health of the udders of dairy herds, MCC has offered a **'PCR subscription' since 2024, where tank milk is tested three times a year**.
- In September, and in collaboration with the Academie voor Diergeneeskunde – AcVetMed (Academy of Veterinary Medicine) at UGent and Biocheck.UGent, DGZ started organising a five-day training course: 'Training to become a recognised AR coach', which was successful.
- MCC disseminated valuable information in its newsletter, in particular on the importance of effective management and reduction of antibiotic use, which was also shared at the **National Mastitis Council** in Dallas, Texas, where MCC had the honour of presenting the Flemish approach for monitoring milk quality to an international audience of dairy farmers, veterinarians, researchers and other stakeholders.
- MCC organised several presentations for veterinarians during 2024 on **selective dry cow periods**, which can not only be economically beneficial but also help reduce antibiotic use.
- DGZ and MCC are committed to participating in projects aimed at developing tools for the prevention and control of AMR and infections, with the aim of informing, raising awareness and supporting the sector. As part of its participation in the **EU's JAMRAI II project**, intended to develop a holistic European approach to antibiotic resistance, in 2024 DGZ gathered all available information on stakeholders, tools, protocols, guidelines and programmes relating to infection control and prevention and antimicrobial stewardship in Europe. This was in preparation for an interactive workshop in Bilbao in spring 2025. In addition, 2024 saw the conclusion of the **PneumoNEE** project, including the development of rapid scan lung ultrasound; other projects DGZ has worked on include the **MonEntero** project, which aims to develop an innovative monitoring protocol for *Enterococcus* spp., the **Boerenvreugde in de**

West-Vlaamse kraamstallen project, which focuses on the management of farrowing pens, the basis for healthy and technically optimal pig production, and the innovative VLAIO **On Practice Culture** project, which studies the selective treatment of non-severe clinical mastitis.

In collaboration with farmers and farm veterinarians, DGZ and MCC have undertaken to make sustained efforts to reduce the use of antibiotics, in line with the objectives of all partners in the antibiotics agreement, and are aligning their actions with the international arena.

ARSIA

In 2024, ARSIA developed the Bigame-AB Register web services (ensuring the interchangeability of AB data) and the AB data corrections web services with Sanitel-Med. A working group convened at ARSIA together with AMCRA and UPV to adapt the weights by animal category in the benchmarking reports. A collaborative project between Bigame/AB Register on AB data quality has been submitted to the NAP committee.

ARSIA attends various trade fairs (Libramont, Battice, VTExpo) to answer questions on the interaction of the various AB databases, AB consumption and monitoring of antibiotic resistance.

ARSIA is continuing its work with various software developers to improve data monitoring. Various tools are available on the Cerise portal for Walloon herds: updated disease sheets, salmonella sheets, 'Tarir malin' (smart dry cow periods), antibiogram sheets, etc.

ARSIA continues to actively monitor antibiotic resistance. The main trends in antibiograms can be found in the activity report (French only) (https://www.arsia.be/rapport-dactivites/). In terms of infection prevention and control, ARSIA also provides farm monitoring and control plans to objectively assess and try to resolve problems on farms and therefore reduce the use of antibiotics.

AB Register

In 2024, AB Register submitted a total of 20,290 benchmarking reports: 13,504 for pig farmers, 1,775 for poultry farmers and 5,011 for cattle farmers. AB Register collects data from more than 90% of professional livestock farms in Flanders. The use of antibiotics in beef cattle was analysed for the first time, and dairy and beef cattle farmers now receive a single report for both types of cattle.

Following the legal obligation to register antibiotics for cattle (in force since 10 August 2023), discussions were held with the public authorities in 2024 on the possibilities for a joint benchmarking report for cattle. These discussions were held in collaboration with the quality label organisations (Belbeef and IKM/QFL), BIGAME, AMCRA and the relevant public services. The aim was to have a joint report for cattle (dairy cattle and beef cattle in the same report) in 2025. Joint projects with BIGAME were also set up in 2024. For example, a link was created for exchanging antibiotic records between the AB Register and BIGAME, in order to support veterinarians working in both Flanders and Wallonia. In addition, a joint project was developed in the context of the One Health NAP AMR, focusing on data quality and zero users. Finally, AB Register continued to invest in data quality in 2024 through automatic data checks.

AMCRA

Since 2012, AMCRA has been the knowledge centre on antibiotic use and resistance in animals in Belgium. AMCRA's 'Recommendations and Communications' unit acts as a catalyst for the responsible use of antibiotics through communication and awareness-raising among the target audience. In 2024, **information sessions were organised in Flanders, Brussels and Wallonia to effectively inform pet veterinarians** on the application of the Royal Decree of 21 July 2016 on the conditions for the use of critically important antibiotics. AMCRA also collaborated on the training course for the accreditation of veterinarians as coaches specialising in antibiotic resistance ("AR coaches"), which was organised in Flanders and Wallonia.

AMCRA gave presentations on antibiotic policy in Belgium and Europe, on the guidelines in its vade mecum and on the analysis of data on the use of antibiotics in livestock farming. In 2024, AMCRA launched a **satisfaction survey on its vade mecum** among veterinary students and practising veterinarians in Belgium. By responding to the survey, users of the vade mecum provided relevant information on its user-friendliness and the quality of its content. The results of the survey can be consulted (in French) on the AMCRA website.

Since January 2024, AMCRA has participated in the **European Joint Action on Antimicrobial Resistance and Healthcare-Associated Infections (EU-JAMRAI 2)**. The EU-JAMRAI II project aims to promote interdisciplinary collaboration between countries, institutions and sectors, ensure the effectiveness of antimicrobial substances and protect public health, both now and in the future. AMCRA is actively involved in this project, with initiatives relating to antimicrobial stewardship and awareness-raising in the animal sector.

In 2024, **AMCRA's 'Data Science and Analysis Unit'**, which works on behalf of the FAMHP, analysed the data on antibiotic use collected in the Sanitel-Med data collection system. For the first time, data on antibiotic use in all dairy and beef cattle farms in Belgium were analysed. This led to the first publication of data on antibiotic use in these sectors in the **Sanitel-Med Barometer** and the first **benchmarking reports for cattle farmers**.

In collaboration with the managers of specifications and thanks to funding from the Health Fund, AMCRA's Data Science and Analysis Unit analysed data from users of the AB Register and BIGAME data collection systems.

Results on the sale and use of antibiotics in animals in Belgium in 2024 and their evolution since 2011

Sales figures of antibiotics

The sale of antibacterial products for animals in Belgium is monitored every year and correlated with the biomass produced. The results of this monitoring are published in the BelVet-SAC report on the FAMHP website under BelVet-SAC Reports | FAMHP. Until 2021, sales data was collected from Belgian distributors and compound feed manufacturers. **European Regulation 2019/6, in force since 2022, allows marketing authorisation holders with the appropriate authorisation to sell veterinary medicines directly to veterinarians and pharmacists. In order to obtain as complete a picture as possible of sales of antibacterial products for all animals, it was therefore decided to collect sales data on antibacterial medicines for veterinary use for 2022 and 2023, with the exception of premixes, from marketing authorisation holders for antibacterial medicines in Belgium. For premixes, the data was collected from compound feed manufacturers, as they supply directly to farmers and only on veterinary prescription.**

Antibacterial medicines for veterinary use, excluding premixes, are referred to below as 'pharmaceutical products'.

The reduction targets specified in the 2021-2024 antibiotics agreement are based on sales figures. The results, based on sales figures for 2024, are presented below. The results are presented for the period 2012-2024, with 2011 as the reference year (as in the antibiotics agreement). The results shown above are for the period 2021-2024, with 2020 as the reference year: as such, the results obtained during the period of Vision 2024, the second antibiotics agreement and the first One-Health National Action Plan to combat antimicrobial resistance are shown.

Total sales

- **Target reduction by the end of 2024: 65% (in mg of active antibacterial substance/kg of biomass)**
- **Change from 2023 to 2024: +6.3%**
- **Reduction achieved between 2021 and 2024: 34.1%**
- **Reduction achieved since 2011: 59.9%**

An increase of 6.3% (in mg of antibacterial active substance/kg of biomass) was recorded in 2024 compared to 2023. This was due to an 8.2% increase in sales of pharmaceutical products and a 19.2% decrease in sales of premixes. Compared to 2011, the reference year, the **total decrease** in all sales recorded in 2024 was **59.9%** (in mg of active antibacterial substance/kg of biomass). The target of a 65% reduction was therefore not achieved.

Also in 2024, the aminopenicillin class had the highest sales (34.9 tonnes; 29.7%), followed by tetracyclines (18.6 tonnes; 15.8%), the sulphonamide-trimethoprim combination (17.3 tonnes; 14.8%) and macrolides (15.9 tonnes; 13.5%). The quantities sold of the two most widely used classes decreased in 2024 by 0.4% and 2.9% respectively, reaching their lowest level to date. However, the quantity of macrolides and the sulphonamide-trimethoprim combination sold increased (+10.6% and +18.6%). An increase in sales in 2024 compared to 2023 was also observed for aminoglycosides (+39.8%), lincosamides (+47.3%), phenicols (+6.5%), polymyxins (+12%), aminopenicillins in combination with clavulanic acid (+0.4%) and 3rd and 4th generation cephalosporins, critically important

antibiotics (+1.7%). Sales of macrolides, aminoglycosides and aminopenicillins in combination with clavulanic acid reached their highest level to date.

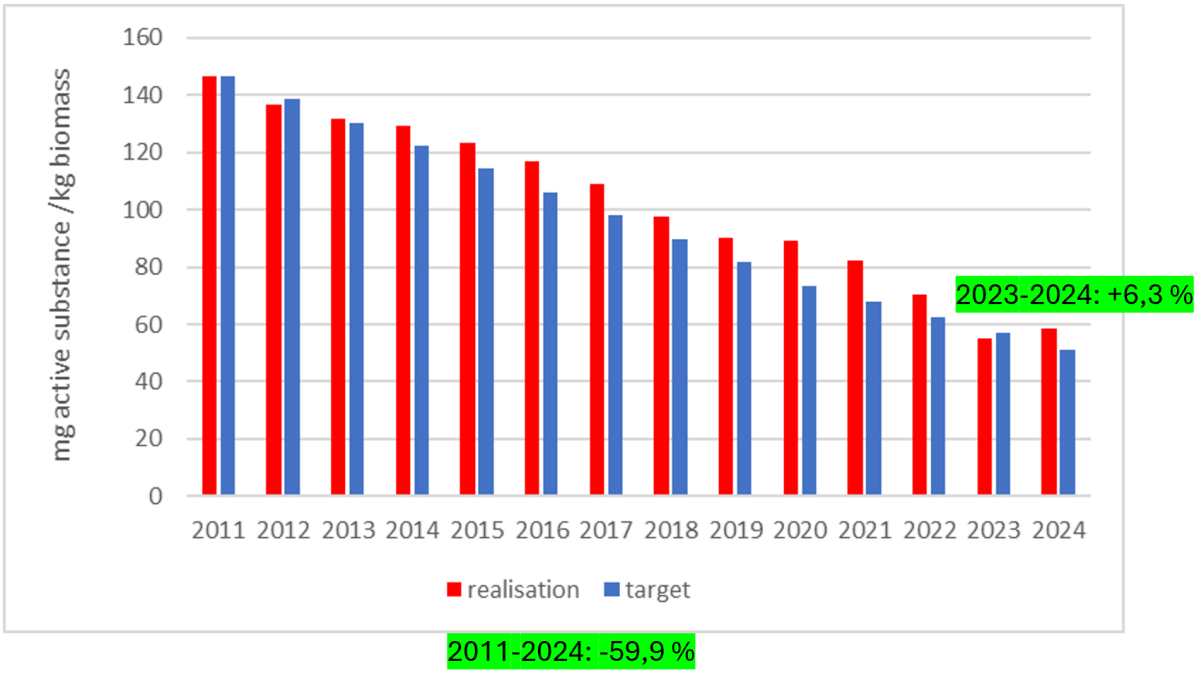


Figure 1. Annual reduction pathway for total antibiotic sales between 2011 and 2024 (blue columns) forecast by AMCRA and actual reduction achieved between 2011 and 2024 (red columns).

Colistin

- **Maximum sales level targeted for end of 2024: 1 mg/PCU (1 mg/kg biomass[2])**
- **Sales in 2024: 0.69 mg/kg biomass**
- **Change from 2023 to 2024: +11.8%**
- **Reduction achieved between 2021 and 2024: 48%**
- **Reduction achieved since 2012: 85.4%**

Sales of colistin increased in 2024 for the second consecutive year. They rose by 11.8% compared to 2023, reaching a level of 0.69 mg/kg of biomass in 2024. Despite this consecutive rise, the target of a maximum of 1 mg/kg of biomass for 2024 remains well within reach, and the overall **reduction since 2012 still stands at -85.4%**.

[2] The data from BelVet-Sac annual reports, expressed in mg of active substance per kg of biomass, are used to calculate the strategic targets.

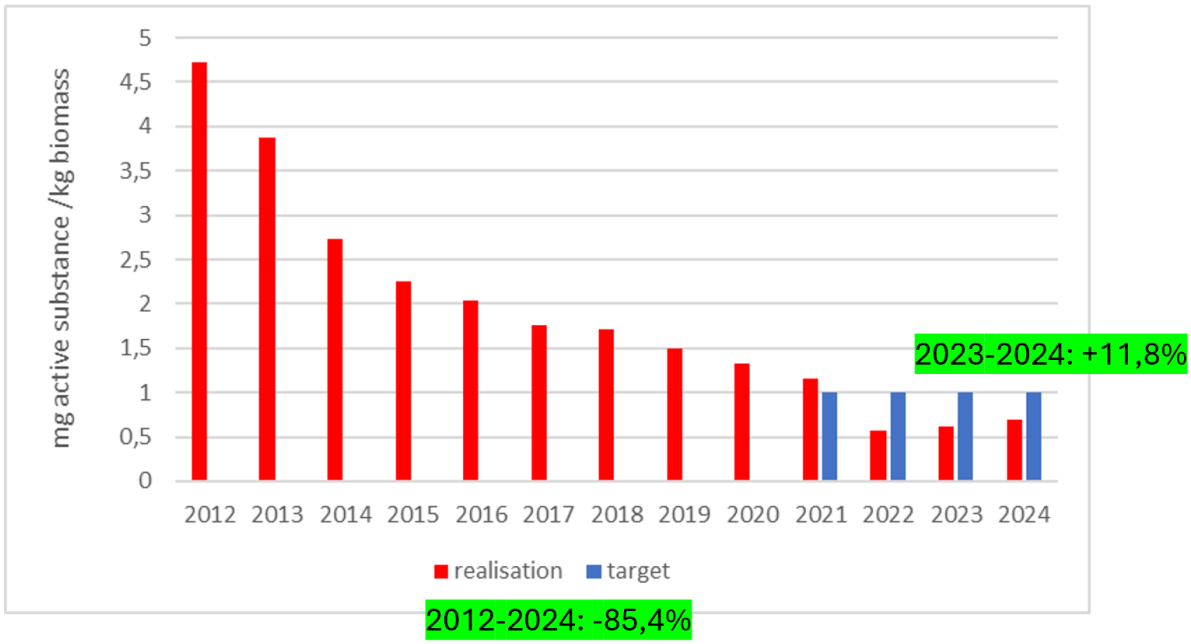


Figure 2. Reduction target for colistin sales for 2024 forecast by AMCRA (blue columns) and actual reduction achieved between 2012 and 2024 (red columns).

Colistin is classified by the World Health Organisation (WHO) as among the critically important antibiotics for public health. The AMCRA guidelines (vade mecum) assign colistin code orange. These molecules are never recommended as a first choice. All AMCRA guidelines on the use of colistin in animals can be found in its opinion (in French) entitled "https://amcra.be/swfiles/files/Avis---Draftdocx_TRAD-FR_finale.pdf"

Critically important antibiotics: 3rd generation and 4th generation quinolones and cephalosporins

- **Target reduction by the end of 2024: 75% (in mg of active antibacterial substance/kg of biomass)**
- **Change from 2023 to 2024: -21.7%**
- **Reduction achieved between 2021 and 2024: 36%**
- **Reduction achieved since 2011: 81.0%**

Sales of quinolones fell by 23.6% compared to 2023, while sales of 3rd and 4th generation cephalosporins rose slightly (+1.7%). **The overall decrease in the use of critically important antibiotics compared to 2011 is therefore 81.0%.**

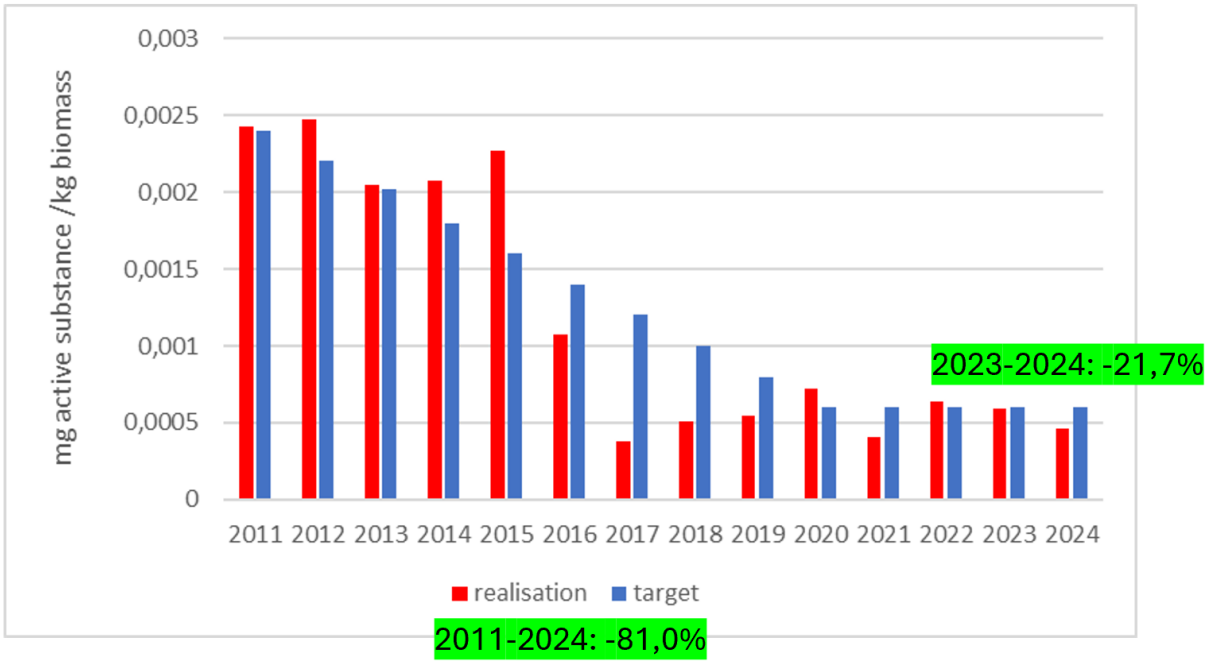


Figure 3. Annual reduction pathway for critically important antibiotics sales between 2011 and 2024 forecast by AMCRA (blue columns) and actual reduction achieved between 2011 and 2024 (red columns).

Medicated feed

- **Target reduction by the end of 2024: 75% (in mg of active antibacterial substance/kg of biomass)**
- **Change from 2023 to 2024: -19.2%**
- **Reduction achieved between 2021 and 2024: 62.6%**
- **Reduction achieved since 2011: 89.1%**

A 19.2% decrease in sales of feed containing antibiotics was observed between 2023 and 2024, **resulting in an overall decrease of 89.1% since 2011.**

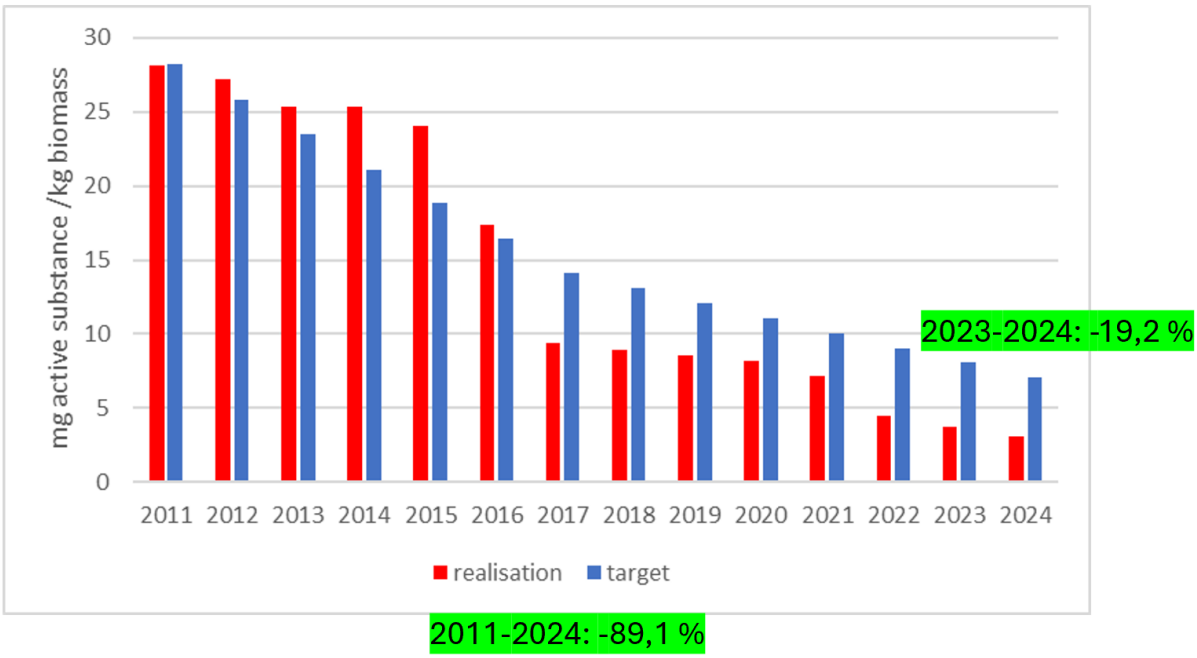
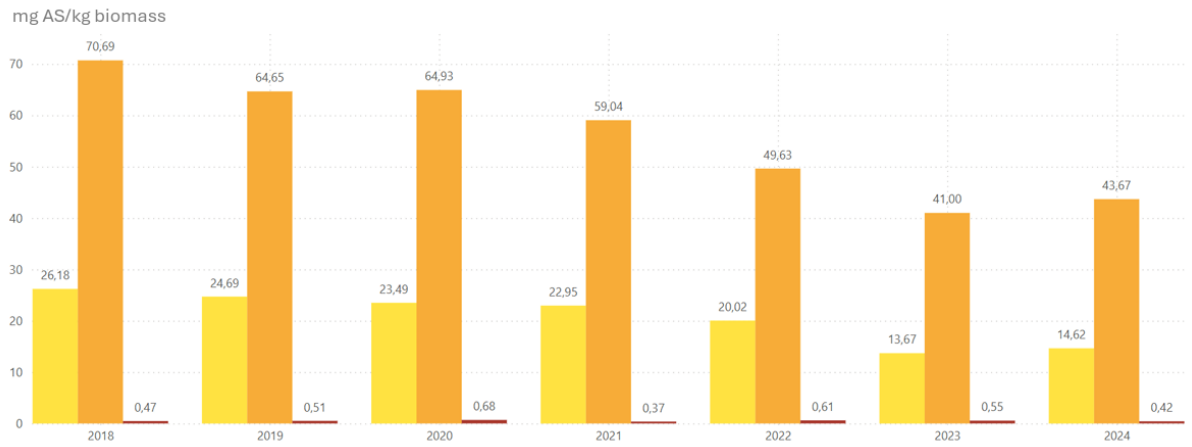


Figure 4. Annual reduction pathway for sales of feed containing antibiotics between 2011 and 2024 forecast by AMCRA (blue columns) and actual reduction achieved between 2011 and 2024 (red columns).

Sales broken down according to AMCRA colour codes

Antibiotics with code orange had the highest sales in 2024, in mg/kg of biomass (74.4%), followed by antibiotics with code yellow (24.9%) and antibiotics with code red (0.7%). This breakdown is intrinsically linked to the fact that there are more authorised classes of antibiotics assigned code orange than the others. Between 2023 and 2024, sales of code orange and code yellow molecules increased by 6.7% and 7.1% respectively. Following a substantial 64.8% increase in sales of code red molecules in 2022, sales fell again in 2023 (-9.8%), and the trend continued in 2024, with a 23.6% drop in sales.



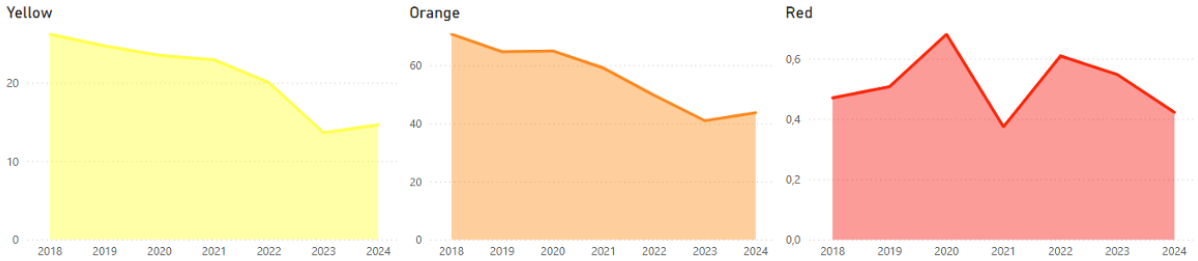


Figure 5. Change in sales of code yellow, code orange and code red products for animals in Belgium between 2018 and 2024 in mg of antibacterial active substance per kg of biomass.

Figures for antibiotic use in pigs, poultry and cattle

Mandatory registration in Sanitel-Med, the FAMHP's data collection system, of all prescriptions, administrations and supplies of antibiotics by veterinarians in pig, broiler, laying hen and veal calf farms in Belgium (Royal Decree of 21 July 2016) makes it possible to display data on the use of antibiotics specific to each animal species and category. Since August 2023, the legal obligation to register has been extended to dairy cattle and beef cattle and to all categories of chickens and turkeys. 2024 was the first full year of recording antibiotic use data for the newly added species and categories, the results of which are presented in this report.

Comparison of sales figures and use figures (Sanitel-Med)

The data collected in Sanitel-Med (use data) in 2024 covered 83.8% of the total quantity of antibacterial active substances sold in Belgium in 2024 (83% of pharmaceutical sales; 99.2% of sales of feed containing antibiotics). If we only take into account use data for pigs, broilers, laying hens and veal calves, antibiotic consumption in 2024 would fall by 3.7 tonnes compared to 2023, with a total volume of use of 82.9 tonnes, and there would be a difference of 34.6 tonnes in 2024 between the sale and use of antibiotics, similar to the differences recorded in the years 2018 to 2022. When the results for dairy and beef cattle and the new poultry categories are added, the difference is reduced to 19 tonnes in 2024. The difference observed between the sale and use of pharmaceutical products is largely attributable to the fact that the use of antibiotics in small ruminants, horses, rabbits and other domestic animals is not yet taken into account.

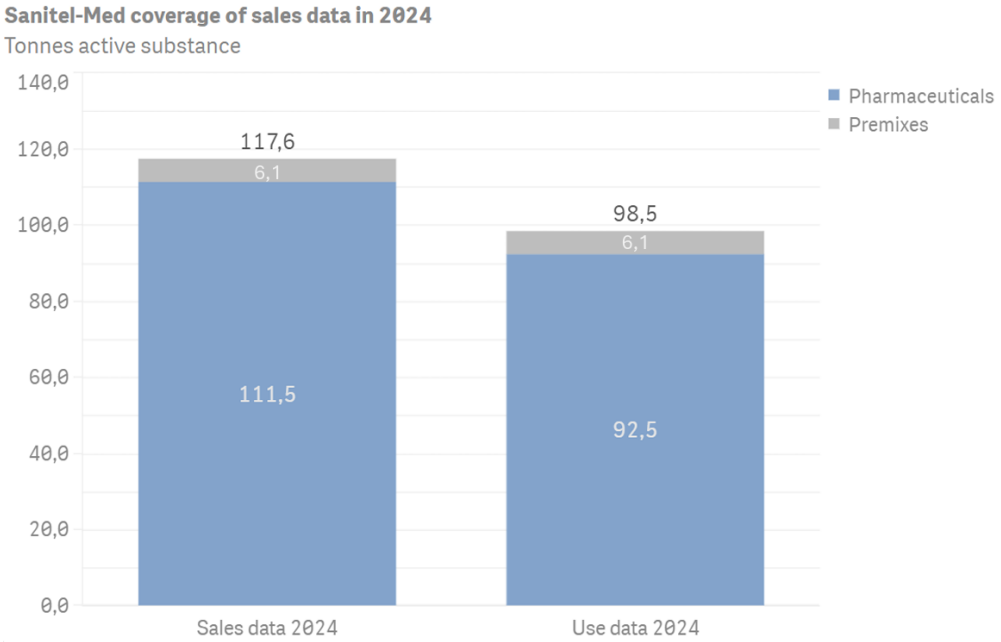


Figure 6: Total quantity of antibacterial active substances (in tonnes) sold and used (data recorded in Sanitel-Med) in Belgium in 2024.

Use by animal category in Sanitel-Med

Antibiotic use is expressed as the number of days during which an animal receives antibiotic treatment per 100 days of being on the farm. This index is called **TD_{100}** ("**T**reatment **d**ays'' per **100** days) and is calculated for each animal category: "suckling piglets", "weaned piglets", "fattening pigs", "sows", "broilers", "laying hens" and "veal calves" (Figures 7 and 8). Farms with zero use were removed from the analysis. Following the significant reductions recorded in 2022 for pigs, use in this sector continued to stabilise in 2024. That does not mean that there is no longer any decrease in farms for the different animal categories, but that in most farms, use was below or around the vigilance value (see "Reduction targets by animal species"). For broilers, laying hens and veal calves, a further decrease in the median TD_{100} was observed in 2024. With the exception of laying hens, a **decrease in the median TD_{100}** has been observed in all animal species and categories since 2018 (the reference year for Sanitel-Med) (Figure 7).

- **Weaned piglets**: with a median TD_{100} of **10.12**, this animal category still had the highest antibiotic use among all categories and species in 2024. A median TD_{100} of 10.12 means that 50% of farms with weaned piglets give antibiotics to their animals for less than 10.12 days out of 100 days, but that the other half of farms give them for more than 10.12 days out of 100 (Figure 8). **Compared to 2018, there has been a 29% decrease, but the progress made since 2023 (median of 10.24) is insignificant** (Figure 7). However, the box plot, which shows the distribution of antibiotic use among farms, reveals significant variation between farms within this animal category (Figure 8). The percentage of zero users was 9% in 2024.
- **Veal calves**: the period taken into account for this animal category is two years. For **2023/2024**, the median TD_{100} was **7.08**, which puts antibiotic use in veal calves in **second place** compared to other animal categories and species. This median of 7.08 represents a **decrease of 2.1% compared to the period 2022/2023** (7.23) and a **decrease of 37% compared to 2018** (Figure 7). Among veal calves, there were 0% zero users in 2023/2024.
- **Broilers**: they are in third place, with a median TD_{100} of **2.6.** In 2024, **there was a further decrease in use** in this sector **(24.4%)**. **Compared to 2018, the decrease was 58%** (Figure 7). The percentage of zero users in this category in 2024 was 16%.
- **Fattening pigs**: with a median TD_{100} of **1.99**, use in this sector in **2024** increased slightly compared to 2023 (1.95) **for the second consecutive year**. **However, compared to 2018, there was a 38% decrease** (Figure 7). The percentage of zero users was 18% in 2024.
- **Suckling piglets**: with a median TD_{100} of **0.86**, antibiotic use in this category **stabilised compared to 2023**. **However, there was a total reduction of 53% compared to 2018 (1.84)** (Figure 7). There were 15% zero users in this animal category in 2024.
- **Boars and sows**: the median TD_{100} for this animal category decreased to **0.26** in 2024. This represents a **decrease of 7.1% compared to 2023 (0.28) and 19% compared to 2018** (Figure 7). The percentage of zero users was 15% in 2024.
- **Laying hens**: in 2024, this category **again** saw a **decrease of 43.2% compared to 2023 (1.55)**. In 2023, there was still an increase in the median TD_{100}. The decline in 2024 brought this category to a median TD_{100} of **0.88**. **Compared to 2018 (0.55)**, however, there was an **increase of 61%** (Figure 7). Despite this relatively significant increase, the median value of TD_{100} is still

low. The percentage of zero users is also the highest in this animal category, with 66% of zero users in 2024.

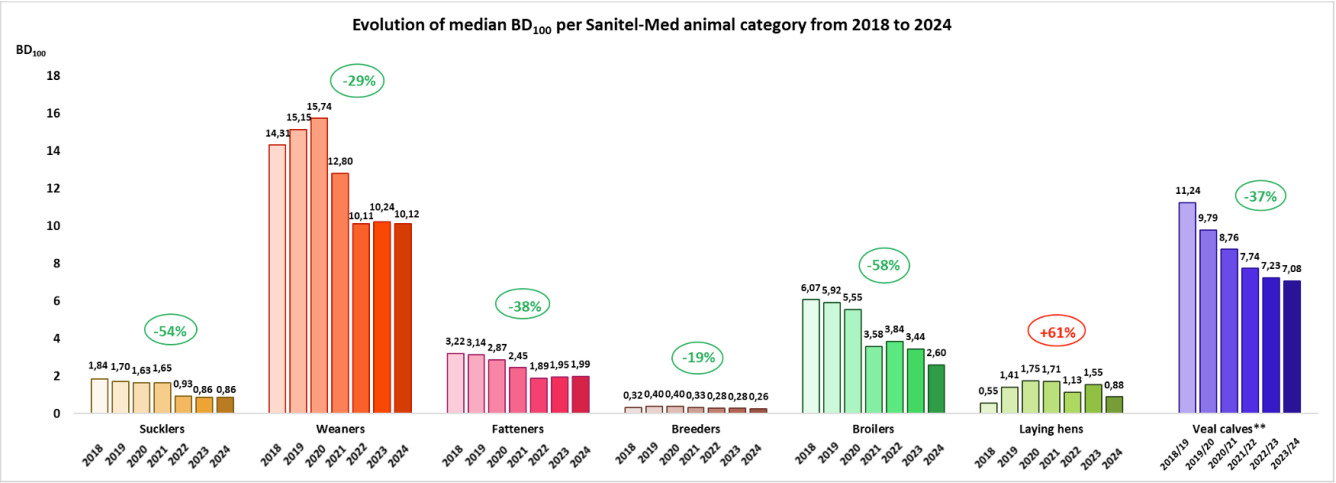


Figure 7. Change in the median TD_{100} of reference populations between 2018 and 2024 for each animal category recorded in Sanitel-Med. The percentages represent the change since 2018. Farms with zero use were excluded from the analysis.

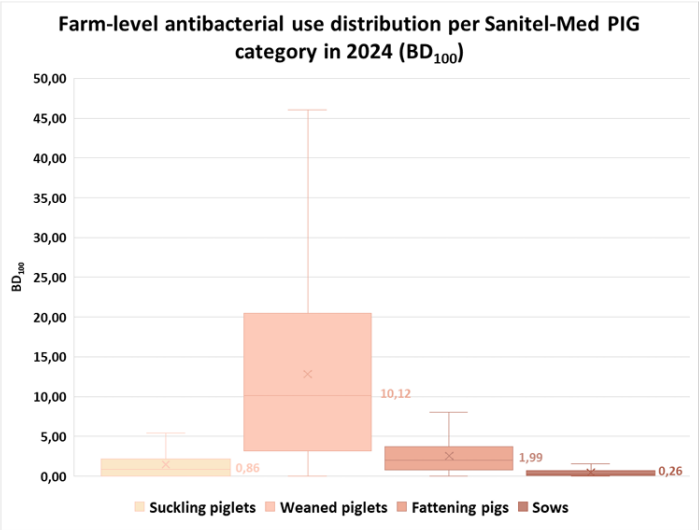


Figure 8. This figure illustrates, for each animal category, the distribution of antibiotic use in 2024 among farms with animals in that category. The darker horizontal line in the rectangles and the number to the right represent the median: 50% of farms use less antibiotics, 50% use more.

This report brings together data on use for the entire cattle sector for the first time. There are two main types of cattle, beef and dairy, although it should be noted that many farms rear both types and, more importantly, that cattle can also be reared for mixed purposes, depending on the breed of animal.

In conclusion, the results for cattle for 2024, the first full year of national data on antibiotic use in this sector, show that the efforts to reduce use should focus primarily on calves aged 0-3 months, as their median use is the highest, and antibiotic use varies significantly from one farm to another in this age group, with a significant proportion of very high users (Figure 9). The efforts in this animal category to

make them less susceptible to infection may also pay off for the veal calf sector, thanks to sales of hardier calves.

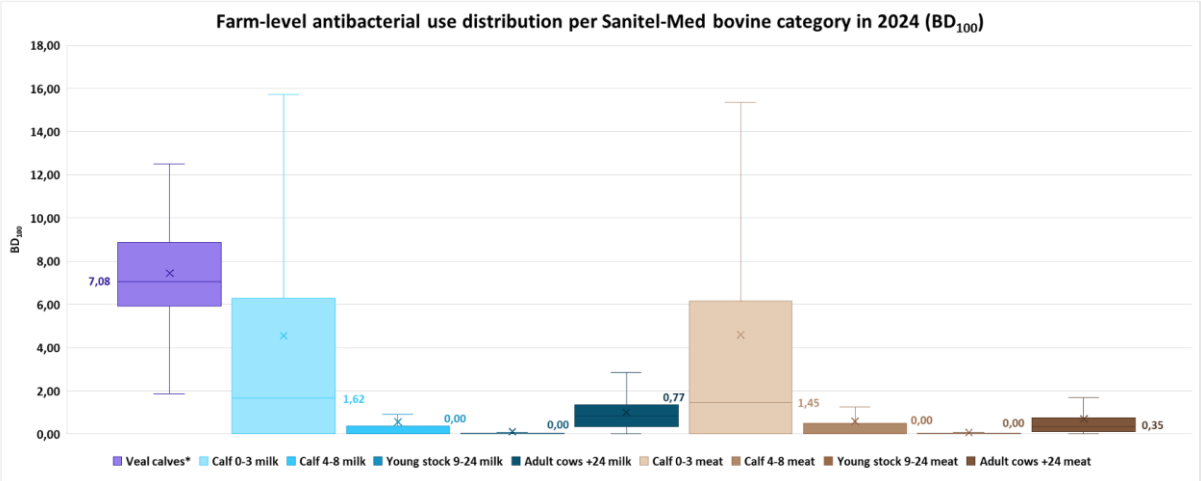


Figure 9. This figure illustrates, for each animal category, the distribution of antibiotic use in 2024 on farms with animals in that category. The darker horizontal line in the rectangles and the number to the right represent the median: 50% of farms use less antibiotics, 50% use more. The benchmarking period is 2023/2024.

This report now also includes use data for all "meat" and "egg-laying" columns in the poultry sector, the former including broiler turkeys (Figure 10). With a median TD_{100} of 3.72, meat turkeys appear to be the category with the relatively highest use of all poultry categories, exceeding even the use in broilers. This animal category also shows a very wide disparity in use between farms.

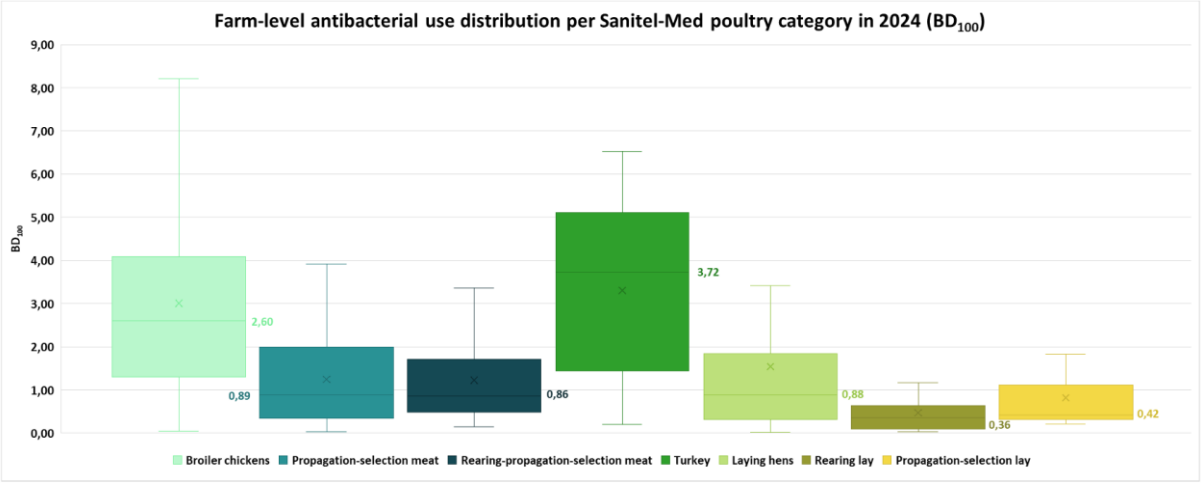


Figure 10. This figure illustrates, for each animal category, the distribution of antibiotic use in 2024 on farms with animals in that category. The darker horizontal line in the rectangles and the number to the right represent the median: 50% of farms use less antibiotics, 50% use more.

Reduction targets by animal species

Based on the use data collected in Sanitel-Med and in consultation with the sectors concerned, AMCRA has established reduction pathways for pigs, broilers and veal calves. These reduction pathways have been included in the second Antibiotics Agreement (Annex 3). A target of a maximum of 1% of users in the alarm zone by the end of 2024 was also set.

Figure 11 shows the percentage of users in the alert zone (purple zone), heavy users (red zone), users to be monitored (yellow zone) and low users (green zone), distinguished by the vigilance value and the action value applicable since 1January 2024. The purple zone includes farms that have been in the red zone for two consecutive years (except those that have reduced their antibiotic use by at least 20% compared to the action value in the last year) and those that have been in the red zone repeatedly over the last three years.

Pigs

Compared to 2023, the situation regarding users in the alert zone in the pig sector has improved slightly (-0.6%), although the percentage of farms in the red and yellow zones has increased slightly. It is important to note that the action value for weaned piglets was modified at the end of 2024.

Broilers

Among broilers, the number of users in the alert zone has decreased (-0.2%), which meant that the target of a maximum of 1% of users in the alert zone was achieved. Here too, the action value was modified at the end of 2024.

Veal calves

For veal calves, the number of users in the alert zone also decreased (-1.6%). The limit values used in 2024 for this category were the same as in 2023.

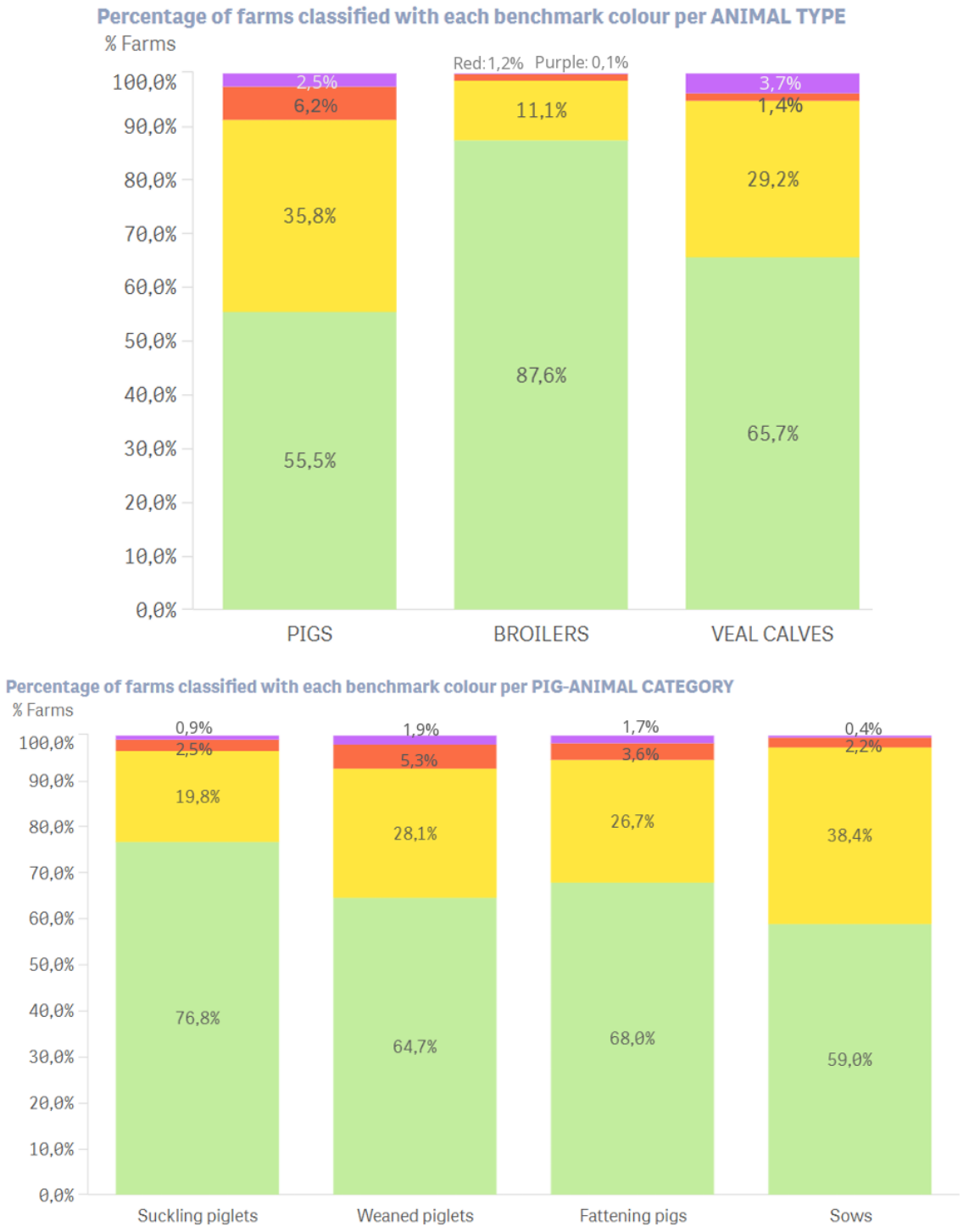


Figure 11: for each species and category of animal, the percentage of users is shown in the alert zone (purple zone), heavy users (red zone), users to be monitored (yellow zone) and low users (green zone) at the end of 2024, distinguished by the vigilance value and the action value applicable since 1 January 2024.

Antibiotic resistance in indicator and zoonotic bacteria from food-producing animals

Background

Antibiotic resistance in bacteria from food-producing animals has been **monitored since 2011**. This monitoring is organised by the Federal Agency for the Safety of the Food Chain (FASFC) and complies with the EU-mandated harmonised monitoring carried out in accordance with Implementing Decision 2013/652 since 2014 and Implementing Decision 2020/1729/EU since 2021. ***Escherichia coli* (*E. coli*), a Gram-negative indicator bacterium**, is isolated to this end in fattening pigs, broilers, veal calves and young beef cattle. The emergence of resistance to 3rd generation and 4th generation cephalosporins in *E. coli* is also monitored through selective and non-selective monitoring. Since 2019, data on antibiotic resistance in the Gram-positive indicator bacteria ***Enterococcus faecium*** and ***Enterococcus faecalis*** from fattening pigs, broilers, veal calves, reproduction hens and laying hens have also been published. The **prevalence and antibiotic susceptibility of** methicillin-resistant ***Staphylococcus aureus*** (MRSA) are also monitored on farms every three years, once a year in poultry (monitoring started in 2011), once a year in veal calves, beef cattle and dairy cattle (started in 2012) and once a year in pigs (started in 2013). For ***Salmonella***, samples were taken in 2024 in the context of the EU-mandated harmonised monitoring in poultry in chicken coops.

An evaluation of the current programme for monitoring antibiotic resistance in the indicator bacteria *E. coli* and *Enterococcus* spp. in Belgium was recently carried out. The aim of this evaluation was to map out monitoring, but also to identify any gaps in the in-depth monitoring of antibiotic resistance in bacteria in food-producing animals. The overall conclusion is that the current system for monitoring antibiotic resistance in bacteria in food-producing animals provides regular and reliable information on the current situation and trends in Belgium.
The evaluation made it possible to identify several areas for improvement in terms of representativeness, sample size, data analysis and reporting, where changes could be made, depending on the objectives and available resources (Sciensano, 2025).

Results

Evolution of antibiotic resistance in Escherichia coli *between 2014 and 2024*

This monitoring is intended to check, in clinically healthy animals, the sensitivity of *E. coli*, a Gram-negative indicator bacterium, to antibiotics belonging to specific classes of antibiotics that are important for animal and public health. Every year, **170 strains** per species are tested in this regard.

Figure 12a shows the prevalence of **multidrug-resistant strains of *E. coli***. These strains are resistant to at least three different classes of antibiotics among 12 tested. Over all monitoring years, the highest number of multidrug-resistant strains was found in broilers, followed by veal calves, then fattening pigs and young beef cattle. **In 2024, the occurrence of multidrug-resistant *E. coli* strains decreased compared to the previous year in beef cattle (4.5%), broilers (3.2%) and fattening pigs (0.7%), while it increased in veal calves (4.7%).** Since 2014, there has been an alternating pattern of increases and decreases. That is why it is more relevant to examine the trend over a longer period. Based on a **linear model**, there is a **significant downward trend in multidrug-resistant *E. coli* strains in fattening pigs, veal calves and broilers compared to 2014. In young beef cattle, on the other hand, the level of multidrug-resistance is low and stable.**

Figure 12b shows the prevalence of fully sensitive ***E. coli* strains** (to 12 different classes of antibiotics). Although the overall sensitivity of *E. coli* from broilers increased by 3% in 2024, it remained very low. **In 2024,** only **15.9% of the *E. coli* strains studied from broilers were still sensitive to the 12 classes of antibiotics tested.** However, the prevalence of fully sensitive *E. coli* strains in broilers has remained more or less the same since 2014. **Fully sensitive *E. coli* strains are most prevalent in young beef cattle (72.8% in 2024)** and their prevalence has remained stable since 2014. **In veal calves and fattening pigs, there is a rising trend in the occurrence of fully sensitive *E. coli* strains compared to 2014, although there was a decrease in the number of these strains in 2024 for both animal categories (4.7% and 1.3% respectively).**

Figures 12a and b. Change in the prevalence of multidrug-resistant (top) and susceptible (bottom) E. coli *strains in food-producing animals in Belgium between 2014 and 2024. 95% confidence intervals have been added. The trend line shows the change between 2014 and 2024. Additional information: number of samples per animal species: +/- 170; sampling location and sample type: for veal calves, young beef cattle (maximum 1 year old), fattening pigs and broilers: caecal contents at the slaughterhouse; 1 strain per sample. Each sample comes from a different epidemiological unit. Antibiotic classes tested: aminopenicillins, macrolides, phenicols, (fluoro)quinolones, polymyxins, 3rd generation cephalosporins, aminoglycosides, sulphonamides, trimethoprim, tetracyclines, glycylcyclines and carbapenems. Sample analysis: Sciensano*

Figure 13 shows the prevalence of **extended-spectrum beta-lactamase (ESBL)-producing *E. coli*** strains based on selective and non-selective monitoring in veal calves, fattening pigs and broilers. **Positive strains from selective and non-selective monitoring are suspected of producing extended-spectrum beta-lactamase and therefore of being insensitive to β-lactams.** Based on +/- 300 faecal samples per animal species, the selective monitoring detects strains of *E. coli* capable of growing in the presence of cefotaxime (a 3rd generation cephalosporin, a critically important antibiotic). The non-selective monitoring provides the results of sensitivity tests for cefotaxime and ceftazidime, 3rd generation cephalosporins, from approximately 170 *E. coli* strains randomly selected from a faecal sample of the animal species in question. Selective monitoring automatically results in higher prevalence rates than non-selective monitoring.

Since monitoring started in 2011, the **number of ESBL-producing *E. coli* strains detected in fattening pigs and veal calves by the non-selective monitoring has been relatively low** (maximum prevalence of 10%). As in other European countries, the **prevalence of ESBL** is **higher in broilers** than in other animal species, which is particularly evident in the results of the selective monitoring. This higher prevalence in broilers can be attributed to various risk factors (such as the shorter lives of broilers compared to pigs, veal calves and beef cattle), but it may also be due to higher use of antibiotics that select for ESBL-producing *E. coli* strains, namely aminopenicillins. **However, since 2021, selective monitoring has shown a decrease in the number of ESBL-producing *E. coli* strains in broilers. The downward trend that started in 2018 is also continuing for fattening pigs. As such, veal calves are the only animal species where the prevalence of ESBL is at the same level as at the start of selective monitoring, despite the decrease observed in 2024.**

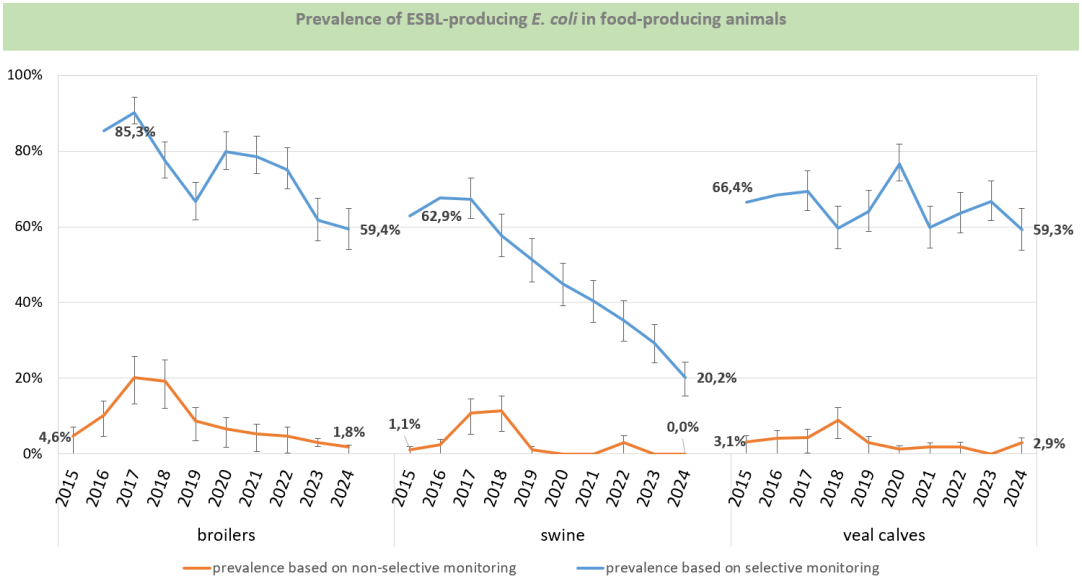


Figure 13. Evolution of the prevalence of extended-spectrum beta-lactamase (ESBL)-producing E. coli *in food-producing animals in Belgium between 2015 and 2024. 95% confidence intervals have been added. Additional information: number of samples per animal species: +/- 300 for selective monitoring, +/- 170 for non-selective monitoring; sampling location and sample type: caecal contents at the slaughterhouse; 1 strain per sample. Each sample comes from a different epidemiological unit. Selective monitoring: McConkey medium + cefotaxime; non-selective monitoring: without cefotaxime. Sample analysis: Sciensano*

Since the discovery of horizontal transmission mechanisms for resistance, the polymyxin class of antibiotics has been re-evaluated by the WHO, which now regards it as a class of "highest priority critically important antimicrobials" for public health. Colistin is the only antibiotic in this class used in food-producing animals. **Colistin resistance in *E. coli* from food-producing animals, as detected in monitoring, has historically been low (Figure 14). In 2024, as in previous years, almost no resistance was observed.**

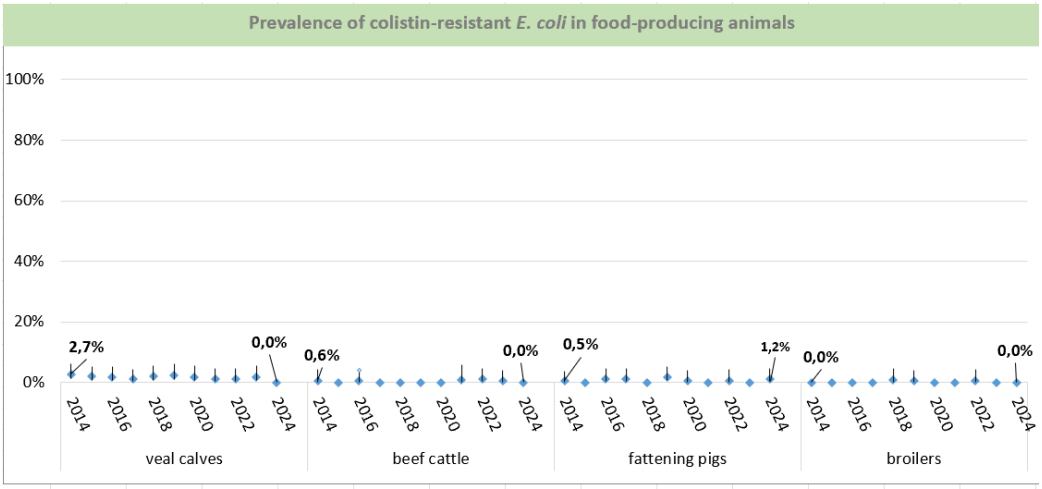


Figure 14. Evolution of the prevalence of colistin-resistant E. coli *strains in food-producing animals in Belgium between 2014 and 2024. 95% confidence intervals have been added. Additional information: number of samples per animal species: +/- 170; sampling location and sample type: for veal calves, young beef cattle (maximum 1 year old), fattening pigs and broilers: caecal contents at the slaughterhouse; 1 strain per sample. Each sample comes from a different epidemiological unit. Sample analysis: Sciensano*

Evolution of antibiotic resistance in Enterococcus faecium *and* Enterococcus faecalis *between 2019 and 2024*

The evolution of the prevalence of multidrug-resistance in *Enterococcus faecium* and *Enterococcus faecalis*, two Gram-positive indicator bacteria, shows a significant decrease in broilers for *E. faecium* and in veal calves for *E. faecalis*. In other food-producing species, the multidrug-resistance observed has remained stable since 2019.

Figure 15 shows the prevalence of multidrug-resistant strains of *E. faecium* and *E. faecalis* in the intestinal contents or faeces of poultry (broilers, reproduction hens and laying hens), fattening pigs and veal calves. These strains are resistant to at least three different classes of antibiotics among the 12 tested.

Multidrug-resistant strains of *Enterococcus* appear most frequently in veal calves and broilers.

Multidrug-resistant *E. faecalis* strains are mainly found in veal calves, while multidrug-resistant *E. faecium* strains are mainly found in broilers. The higher percentage of multidrug-resistant *E. faecium*

strains in broilers is primarily due to a higher prevalence of resistance to erythromycin and ampicillin than in other animal species. The higher percentage of multidrug-resistant *E. faecalis* strains in veal calves is due to their stronger resistance to chloramphenicol and gentamicin.

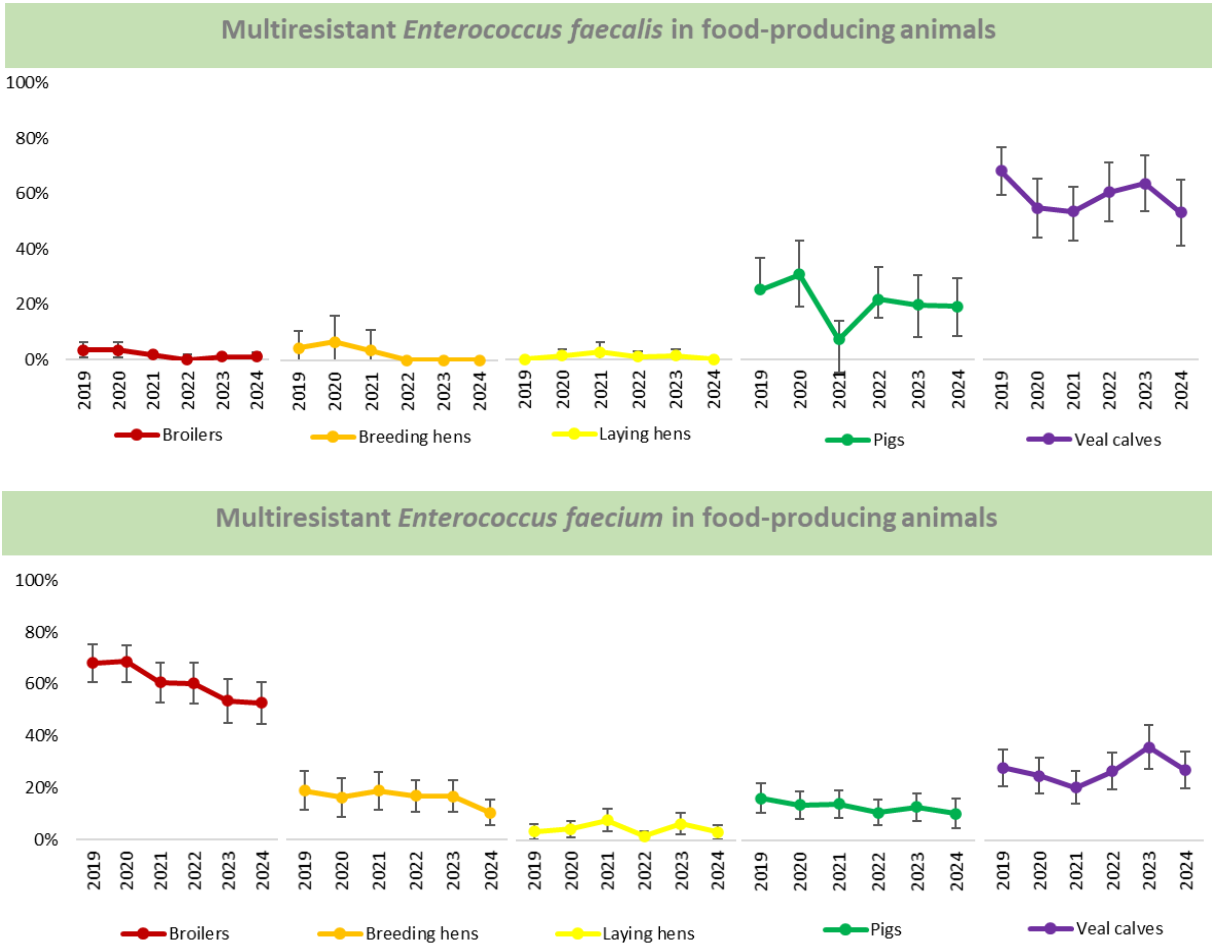


Figure 15. Evolution of the prevalence of multidrug-resistant strains of E. faecalis *and* E. faecium *in food-producing animals in Belgium between 2019 and 2024. 95% confidence intervals have been added. Additional information: sampling location and sample type: for fattening pigs and veal calves, 1 sample corresponds to the contents of the colon, caecum or rectum taken from 1 animal at the slaughterhouse; for broilers, 1 sample corresponds to the mixed contents of ten caeca taken at the slaughterhouse; for reproduction hens and laying hens, the sample corresponds to faeces taken from the ground in ten locations on the farm. Each sample comes from a different epidemiological unit. Maximum one strain of* E. faecalis *and one of* E. faecium *per sample. Antibiotic classes tested: aminoglycosides, aminopenicillins, diaminopyrimidines, fluoroquinolones, glycopeptides, glycylcyclines, lipopeptides, macrolides, oxazolidinones, phenicols, streptogramins and tetracyclines.* Enterococcus faecalis *is intrinsically resistant to quinupristin/dalfopristin. This resistance is not included in the prevalence of multidrug-resistance. Sample analysis: Sciensano. Odds ratios: OR = 1.876; 95% CI [1.024-3.437] in veal calves -* E. faecalis *(period 2019-2024), and OR = 1.903; 95% CI [1.206-3.005] in broilers -* E. faecium *(period 2019-2024).*

Evolution of the prevalence of methicillin-resistant Staphylococcus aureus *(MRSA) from 2011 to 2024*

MRSA isolates are resistant to most β-lactams and are often resistant to several other classes of antibiotics. MRSA monitoring in 2024 focused on veal calves, beef cattle and dairy cattle. The prevalence of MRSA in other animal species (broilers, laying hens, fattening pigs and sows) observed in previous years is also shown in Figure 16. A new isolation method ("1-S") has been in use since 2022 (Larsen et al., 2017). According to the literature, this method has a higher sensitivity for MRSA collected via nasal swabs from pigs (Larsen et al., 2017) than the method used in 2016 and 2019 ("2-S"). Owing to this new isolation method, it is not possible to compare the results obtained in pigs in 2022 with

those from 2016 and 2019. A comparison of the two isolation methods using samples from broilers, laying hens and cattle reveals no significant difference in their effectiveness (Nemeghaire et al., 2013 and 2014). We can therefore assume that the trends can be assessed over the complete period (regardless of the isolation method used) for poultry and cattle. **In 2024, the prevalence of MRSA was also higher in veal calves than in beef cattle and dairy cattle.**

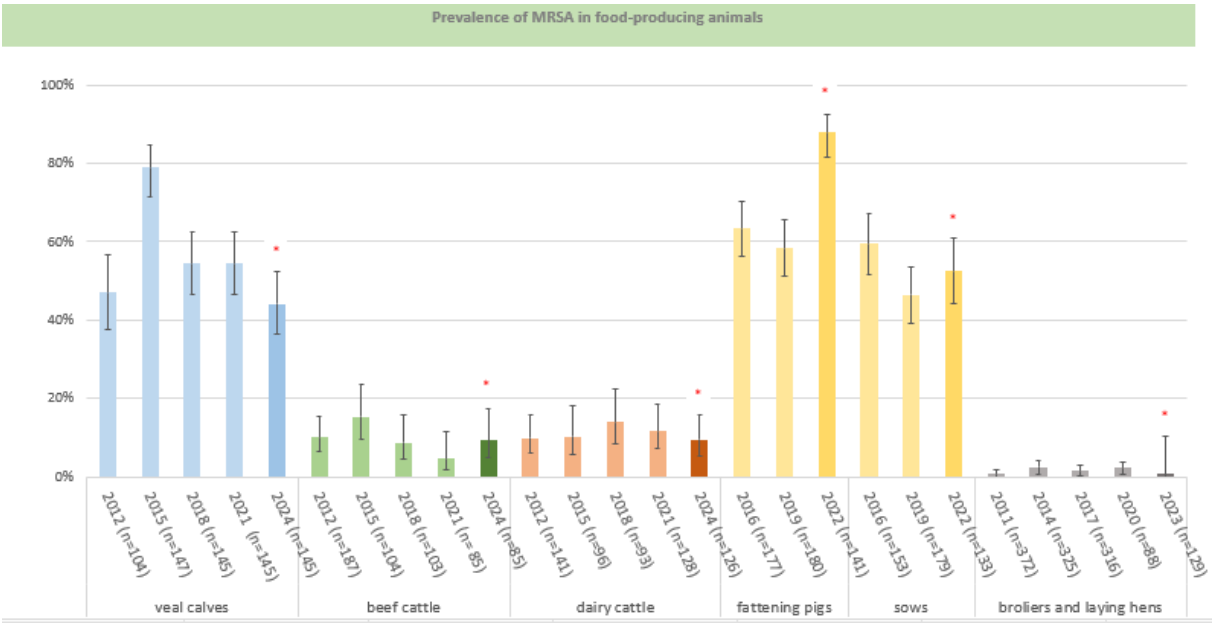


Figure 16. Evolution of the prevalence of methicillin-resistant Staphylococcus aureus *(MRSA) in food-producing animals in Belgium between 2011 and 2024. 95% confidence intervals have been added. The red asterisk means that the new isolation method ("1-S") was used in 2022, 2023 and 2024. Additional information: number of samples per animal species and per year: see x-axis; 1 sample = pool of 10-20 nasal swabs; sampling location: farm; sample analysis: Sciensano*

Quinolone resistance in Salmonella enterica *isolated from broilers*

In 2024, monitoring of antibiotic resistance in *Salmonella enterica* focused on broilers.

In 2024, the prevalence of *S. enterica* based on a sampling of broilers in the chicken coop in the three weeks prior to slaughter was 2.3% (268 positive flocks out of a total of 11,723 tested). The most frequently found serotypes were *S.* Paratyphi B var. Java (141 strains) and *S.* Infantis (40 strains). Five strains of *S.* Enteritidis and 10 strains of *S.* Typhimurium were found. The remaining strains included several other serotypes. A total of 218 strains of *S. enterica* were tested for sensitivity to various antibiotics.

Food-producing animals, including broilers, and their products are often the source of intestinal infections in humans. ***S.* Enteritidis and *S.* Typhimurium are the most important serotypes transmitted from animals to humans.** In *Salmonella* infections, in some cases (severe cases of non-typhoid *S.* spp.), it may be necessary to start antibiotic treatment. Fluoroquinolones are often the first choice. As was the case in the monitoring of *S. enterica* in broilers in 2020 and 2022, a high level of resistance to ciprofloxacin was detected in 2024 among the most frequently occurring serotypes (Figure 17). *S.* Enteritidis and *S.* Typhimurium were sensitive to ciprofloxacin. Resistance to

fluoroquinolones, which include ciprofloxacin, is important as this class of antibiotics is potentially used in people with *Salmonella* infection.

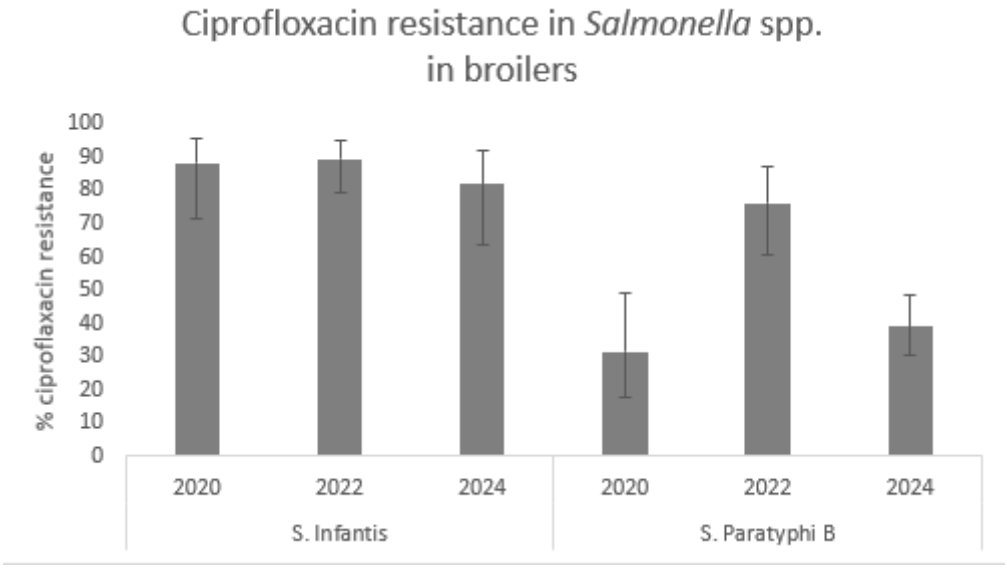


Figure 17. Prevalence of ciprofloxacin resistance in Salmonella enterica*, serotypes Infantis, Parathyphi B var. Java in Belgium in 2020, 2022 and 2024. 95% confidence intervals have been added.*
In 2024, 218 strains were tested for ciprofloxacin resistance. Additional information on the sampling location: samples were taken from shoe covers used in broiler coops in the three weeks prior to slaughter. Sample analysis: Sciensano.

More detailed information on the prevalence of antibiotic resistance in bacteria from food-producing species (primary sector) is available in the annual reports of Sciensano at (French only): Antibiorésistance - Résultats | Federal Agency for the Safety of the Food Chain.

For results from EU Member States and non-EU countries, please consult the European Food Safety Authority's "Dashboard on Antimicrobial Resistance" (https://www.efsa.europa.eu/en/microstrategy/dashboard-antimicrobial-resistance). For information on the measures taken by the European Union to combat antimicrobial resistance: https://health.ec.europa.eu/antimicrobial-resistance/eu-action-antimicrobial-resistance_en

Discussion and conclusions

The Vision 2024 plan and the second agreement on antibiotics are concluded with three of the four targets being achieved, based on antibiotic sales. Antibiotic resistance data show a decrease in multidrug-resistant strains and an increase in sensitive strains of the Gram-negative indicator bacterium *E. coli* (change compared to 2011). For the Gram-positive indicator bacteria *E. faecalis* and *E. faecium,* the prevalence of multidrug-resistance has also been declining since monitoring started in 2019 for the two animal categories with the highest multidrug-resistance (broilers and veal calves), while the situation in other animal species remains stable.

➢ Targets based on antibiotic sales

Total antibiotic sales **increased by 6.3% in 2024** compared to 2023. **Since 2011, the cumulative reduction in total antibiotic sales is 59.9%**. The strategic reduction target for the animal sector (the objective of AMCRA's Vision 2024, the second agreement on antibiotics and the 2021-2024 National Action Plan) of 65% for total antibiotic sales by the end of 2024 has therefore not been achieved.

Sales of **medicated feed containing antibiotics reduced by 89.1%** in total. The second strategic objective (75% reduction in medicated feed containing antibiotics compared to 2011) has therefore been comfortably exceeded. There was a further decrease in 2024 compared to 2023, of 19.2%.

Sales of **critically important antibiotics decreased by 81.0% compared to 2011**. The reduction target of 75% set out in the first and second agreements has therefore been achieved. Between 2023 and 2024, although there was an increase in sales of 3rd and 4th generation cephalosporins, sales of quinolones decreased. Since 1 September 2024, the Royal Decree of 21 July 2016 on the conditions for the use of critically important antibiotics has also applied to pets and horses. If complied with, a further decline in sales of critically important antibiotics is expected by 2025. For all animal species and in all sectors, the preventive approach to diseases for which these drugs are used must be stepped up, as must the ongoing monitoring of compliance with the articles of the Royal Decree of 21 July 2016 on the conditions for the use of critically important antibiotics, in order to ensure use in compliance with the law.

2**024 was the second year in which colistin sales increased, with an 11.8% rise recorded compared to 2023. Despite this increase, total sales of colistin in 2024, at 0.69 mg/kg of biomass**, were in line with the maximum use target for colistin of 1 mg/kg of biomass laid down for the end of 2024 by AMCRA and the second antibiotics agreement. **The increase in sales is not reflected in the recorded use of colistin, which shows an overall decline across all animal species.**

➢ Decrease in antibiotic use in animal species

Collecting data by animal species makes it possible to map the use by sector and identify farms where use is (too) high. In 2024, the observed progress remained unchanged for broilers and laying hens, while the decline in other animal species slowed down.

In conclusion, for the **pig sector**, 2024 saw a further reduction in antibiotic use in all categories, with the exception of fattening pigs, which saw a slight increase. Significant reductions have been achieved since data collection started and, above all, since the introduction of reduction pathways. In 2024, antibiotic use on 55% of pig farms was in the green zone, and only 6% of farms were in the red zone. Nevertheless, there are still peaks in use, and it should be recalled that the action values for weaned piglets and fattening pigs are still very modest thresholds. Furthermore, farms in the red and yellow

zones still use significant amounts of antibiotics. **The collective efforts of all stakeholders have made it possible to achieve excellent results, which should encourage the sector to continue down this path in the coming years, while making even more effort to support the remaining significant users and encourage them to reduce their use of antibiotics.**

The results for **veal calves** in 2024 once again highlighted the major challenges facing the sector in reducing its structurally high use of antibiotics. **The efforts made so far, given the challenging sanitary conditions caused by bluetongue virus and epizootic haemorrhagic disease virus in 2024, must be acknowledged. Research must continue, with all relevant stakeholders, to find solutions for a sector which, given its system of production, is prone to using an increasing amount of antibiotics.**

In the poultry sector, antibiotic use has traditionally been low in **laying hens**, with the zero user rate still above 60%. Use in farms in laying hens decreased again, with 2024 being the year with the lowest use since 2018. Only a minority of farms use antibiotics. However, the low overall level of antibiotic use is marked by significant percentage fluctuations from year to year. The **broilers** sector saw a considerable decline in antibiotic use in 2021 compared to 2020, but stayed at the same level in the following two years. **However, a further marked decline was recorded in 2024**, with most parameters showing a decrease of more than 60%. While in 2018, around 30% of broiler farms had consumption above the current action value, today this figure stands at just 1.5%. More than 85% of farms are even below the current vigilance value. This illustrates the **sector's capacity to reduce its consumption without a reduction pathway, although this may also suggest that there is sufficient margin to introduce more ambitious threshold values**.

The second agreement, covering the period 2021–2024, had the ambition of developing a methodology for assessing antibiotic use in pets and, after collecting the relevant data, to establish a pathway for reducing antibiotic use in pets based on evidence and in line with the reduction targets of the agreement. AMCRA collaborated with stakeholders to draft an opinion: "Collection and analysis of data on the use of antibiotics in pets and horses and benchmarking of veterinarians". This opinion was submitted to the FAMHP and other federal administrations in 2025. At the same time, the FAMHP is developing the VAMREG tool to make it possible to communicate data on the sale and use of antibiotics in veterinary medicine for animals not registered in Sanitel (including pets) to the EMA, as required by the EU. Data collection and the development of a reduction pathway in a later phase will start in agreement with stakeholders to meet EU reporting requirements.

- **Antibiotic resistance continued to decline in 2024.**

Antibiotic resistance in the indicator bacterium *Escherichia coli* has been relatively high since monitoring started in 2011, but there has been a **downward trend in the number of multidrug-resistant strains** and an increase in the number of fully sensitive *E. coli* strains in various food-producing animal species since 2014. **However, the high rate of isolated multidrug-resistant germs remains a concern, particularly in broilers and veal calves.** Since monitoring started in 2011, alternating increases and decreases in the prevalence of antibiotic resistance have been observed in all animal species.

For the fourth consecutive year, selective monitoring showed a decrease in the number of ESBL-producing *E. coli* strains in broilers. A downward trend has also been observed in pigs since 2017, while annual fluctuations have been observed in veal calves, with no clear decrease. The **resistance of *E. coli* to colistin**, a highest priority critically important antimicrobial for public health, **remained very low in 2024**. A downward trend in multidrug resistance in *Enterococcus faecium* and *Enterococcus faecalis*, two Gram-positive indicator bacteria, was observed for the two animal categories where

multidrug resistance is highest, while the situation in other categories remained stable. Multidrug-resistant *Enterococcus* strains are most common in veal calves (for *E. faecalis*) and broilers (for *E. faecium*), but the prevalence of multidrug resistance has been declining since monitoring started in 2019.

It is essential to **continue reducing the use of all antibiotics** so that the decline in antibiotic resistance in various indicator and zoonotic bacteria can be perpetuated. Indeed, antibiotic use is the main cause of the selection and spread of antibiotic resistance in bacteria. Co-selection plays an important role in maintaining resistance to various classes of antibiotics. **The focus therefore needs to be on limited use, not only of critically important antibiotics, but also of all classes of antibiotics.**

➢ Undertaking by public authorities and sectors

All animal sectors are aware of the risks of antimicrobial resistance and have undertaken to make sustained efforts to further reduce the use of antibiotics through preventive measures and sensible use, in order to achieve a further reduction in resistance in the coming years. This will benefit the welfare and health of animals, humans and the environment.

In 2023, AMCRA developed a new plan for the period 2025-2030, Vision 2030 (published on the AMCRA website). AMCRA's new 'Vision 2030' sets out new reduction targets and action points that should help in developing a sustainable policy on antibiotics in animals in Belgium after 2024. AMCRA's new 'Vision 2030' will also serve as the basis for a third agreement on antibiotics that the public authorities and sectors have undertaken to draw up, to continue their fruitful cooperation after 2024. A new **One-Health National Action Plan to combat antimicrobial resistance for the period 2026-2029** is currently being drawn up. **Collaboration in the fight against antimicrobial resistance will therefore continue, and strong commitments have been made to continue working together to reduce antibiotic use in animals. The animal sector therefore still works with conviction towards a future in which antibiotics are used sustainably and rationally in Belgium.**