BelVet-SAC

BELGIAN VETERINARY SURVEILLANCE OF ANTIBACTERIAL CONSUMPTION

NATIONAL REPORT ON SALES AND USE OF ANTIBACTERIAL VETERINARY MEDICINAL PRODUCTS

2025

Publication date: 25 June 2026

SUMMARY

This 17th BelVet-SAC report describes the results of the 'sales' and 'use' of antibacterial veterinary medicinal products (VMPs) in animals in Belgium in 2025, along with an analysis of the evolution of these data over the years.

As in previous years, 'sales' data were collected at the level of the **manufacturers of medicated feed (antibacterial premixes)** and the **holders of a marketing authorisation (MAH)** for antibacterial VMPs in Belgium (**antibacterial pharmaceuticals**); 'use' data were sourced from registrations in **SANITEL-MED**. Compared to previous reports, the analysis also includes sales for **'other animals kept or bred'**. These data are based on the marketing authorisations by species and standardised using population data for cats and dogs from the annual European Pet Food Industry reports (FEDIAF).

On a policy level, **2025 was a transition year**, between the end of the previous 2024 target year and the formal implementation of new targets towards 2030, expected in 2026. Nonetheless, antibacterial sales reached a **record-low of 51,4 mg/kg biomass in 2025**, a decrease of almost 13 % compared to 2024, resuming the long-term downward trend. This corresponds to a **total reduction of 64,9 % since 2011**, virtually **achieving the 2024 target with a one-year delay**, and marking an important step towards the -70 % target proposed for 2030. Both the sales of antibacterial pharmaceuticals and antibacterial premixes decreased in 2025, the latter by 22,6 %, bringing the **overall reduction in sales of antibacterial premixes since 2011 to 91,5 %**. Although the target of ceasing all production of antibacterial premixes by the end of 2026 still requires a substantial final push, it appears within reach.

The results for quinolones were less positive. Their sales results **failed to meet the previous -75 % reduction target** again, **reaching only -74,6 % compared with 2011**. With a -90 % reduction projected for 2030, the 2025 result shows there is an urgent need to seriously address the root cause(s) of the **persistent flumequine use in broilers** – which is the single most important explanation why the target was missed. Moreover, although less visible in the sales result, the use of more potent quinolones in beef cattle (young calves) warrants attention.

Fortunately, **colistin sales remained comfortably below the 1 mg/kg biomass threshold** in 2025, at 0,63 mg/kg biomass, a decrease of 8,9 % compared to 2024. Moreover, the last national target, achieving a **maximum of 1 % alarm users was (virtually) reached in all categories but the veal calves**, where still 2,6 % of farms appear to be long-term or repeated high users, though this is a decrease from the 3,7 % in 2024.

The overall use in **pigs**, as quantified with the BD_{100}-species, further **decreased in 2025 by 16 %** compared to 2024, amounting to a 56,2 % **reduction since 2018**. Furthermore, in 2025, more than 6 out of every 10 pig farms (**61,5 %) had all their categories in the green benchmarking zone**. In the most challenging categories, the weaned piglets and the fattening pigs, the median BD_{100} decreased by approximately 15 % in 2025 compared to 2024, respectively achieving total reductions of 39,4 % and 46,7 % since 2018; the share of farms with a green benchmark colour score reached respectively 67,5 % and 73,4 %, and that of farms with a red benchmark colour score reached approximately 3 %. Although the **median BD_{100} in the weaned piglets** remained the highest of all monitored animal categories, the value **decreased for the first time in three years**. Furthermore, the share of tonnes of antibacterials used by pig categories with a red benchmark colour score substantially decreased, from 22 % in 2024 to 10,5 % in 2025. Overall, **2025 was a remarkable year of continued reduction of the antibacterial**

use in pigs. The sector proves determined in taking its responsibility and deserves credit for continuing the good work.

Poultry was the only sector where the BD_{100}-species increased in 2025, albeit very slightly (+ 0,4 %), **still achieving a 55 % reduction in the BD_{100}-species since 2018**. In 2025, 81,5 % of farms scored a green benchmark colour for all categories and only 3 % scored a red benchmark colour. The increase in the use was **more visible in the new meat categories** (chicken and turkeys) whereas in broilers the median farm-level BD_{100}-decreased by 7 %. The most important challenges for the poultry sector are qualitative: **structurally reducing the use of quinolones in broilers** (accounting for 9 % of all broiler treatment days) and of **colistin in laying hens** (accounting for 86 % of all laying hen treatment days).

The **veal calf sector achieved another modest reduction in its antibacterial use in 2025**, with a decrease of 2,5 % in its BD_{100}-species and of 3,4 % of the median farm-level BD_{100}-value compared to 2024. **Since 2018, reductions around 40 - 45 %** have been reached. Reassuringly, the percentage of veal calf farms with a green benchmark colour score increased to 71 %, suggesting the anticipated new attention BD_{100}-value of 6 is now within reach for the majority of the veal calf farms. Also positive is that the use of quinolones and colistin remained stable at low levels. Challenges remain considerable though, as illustrated by the **structurally high antibacterial use in this sector**. The sector itself signals that **further progress will become visible in the coming years**, and collaboration with all stakeholders involved is ongoing, which will be essential to identify and implement the necessary next steps.

In their second full year of national, legally obliged data-collection, the results for **dairy and beef cattle again point to a low and even decreasing antibacterial use but are overshadowed by the uncertainty regarding data accuracy and completeness**. Stakeholders with field experience hint that an important part of data is missing, the impact of which can only be assessed indirectly, for example by comparing sales and use data of intramammary tubes (approximately 30 % difference). The priority of the sector at this point is to urgently and decisively tackle this problem. Close collaboration with the responsible authorities is advised.

There is renewed attention for the antibacterial use in companion animals, with the upcoming requirement from the European Commission to collect antibacterial-use data in companion animals by 2029 at the latest. In correspondence with the ESUAvet reports, a Belgian-level analysis of the sales data for '**other animals kept or bred**', using denominator data from the annual FEDIAF reports, shows an **8,5 % increase in the amount of antibacterials sold (in mg per kg of biomass) for these species in Belgium between 2022 and 2023 but a status-quo between 2023 and 2024**. In **2025, the non-standardised data show a considerable decrease**. Future reports will need to determine how this relates to the dog and cat population in Belgium. These results highlight the need for proper use data in non-food producing animals and suggest that antibacterial use in companion animals is of the same order of magnitude as currently in food-producing animals. This underlines that the companion animal **sector has its own responsibilities to take in the fight against AMR, especially given the close contact between pet-owners and their pets which poses a mutual risk of spreading AMR.**

Besides the problematic results of quinolone use, the qualitative analysis of the sales and use data show that aminopenicillins, tetracyclines, trimethoprim-sulfamide combinations and macrolides remain the most sold and used classes of antibacterials in 2025, particularly via oral administration. **Almost all classes of antibacterials saw a decrease in the sold quantity, except for quinolones and pleuromutilins**.

In conclusion, monitoring the sales and use of antibacterial VMPs remains a cornerstone of the national antimicrobial resistance strategy. **Sustained collaboration and commitment** from all stakeholders will be essential to drive necessary reductions further. Only through **united efforts** can a healthy and sustainable level of antibacterial use be achieved that safeguards animal health and protects against the growing threat of antibacterial resistance for animal health, the economy and public health.

Clearly, a **further expansion of the use data collection** will bring further insights, but only if the use declaration is done in a rigorous way by the veterinarians. Indeed, high-quality data are indispensable: without them, neither the interpretation of results nor the policies derived from those results can rest on a solid foundation. It is also clear that the inclusion of other food-producing animals, combined with the introduction of a new data collection system (VAMREG), will fundamentally change the nature of data collection and analysis.

Awareness-raising and support are advisable, and ample controls might be required. Crucially, these efforts are meant to be carried out by all stakeholders, sharing responsibility in ensuring that the collection, processing, analysis, and reporting of these new data can be managed effectively, even though this will require significant time and resources.

In anticipation of the new 2030 targets becoming effective, the 2025 results demonstrate that **targets primarily serve as a tool for creating an operational framework for sustainable and responsible reductions, rather than an end in themselves**. Once the field is set in motion, the commitment to reduction can deliver results, independently of the targets. It must at the same time be stressed that **animal welfare remains important and that continued focus on disease-prevention and control measures is essential**. These are vital lessons for future discussions concerning the policy for use of antibacterials in animals.

SAMENVATTING

Dit 17de BelVet-SAC-rapport beschrijft de resultaten van de verkoop en het gebruik van antibacteriële diergeneesmiddelen bij dieren in België in 2025 en schetst de evolutie van deze gegevens doorheen de jaren.

Net als in de rapporten van de voorgaande jaren werden de verkoopdata verzameld op het niveau van de **mengvoederfabrikanten (antibacteriële premixen)** en op het niveau van de **houders van een vergunning** voor het in de handel brengen van antibacteriële diergeneesmiddelen in België **(antibacteriële farmaceutica).** De gebruiksdata zijn afkomstig van de registraties in **SANITEL-MED**. In vergelijking met eerdere rapporten omvat de analyse ook de verkoopcijfers voor **'andere gehouden of gefokte dieren'**, op basis van de productvergunning per diersoort en gestandaardiseerd aan de hand van de populatiegegevens voor katten en honden uit de jaarlijkse rapporten van de Europese diervoederindustrie (FEDIAF).

Op beleidsniveau was **2025 een overgangsjaar**, tussen het einde van het vorige streefjaar 2024 en de formele invoering van nieuwe doelstellingen voor 2030, naar verwachting in 2026. Desondanks bereikte de verkoop van antibacteriële middelen **in 2025 een recorddieptepunt van 51,4 mg/kg biomassa**, een daling van bijna 13 % ten opzichte van 2024, waarmee de dalende langetermijn trend werd voortgezet. Dat komt overeen met een **totale vermindering van 64,9 % sinds 2011**, waarbij **de doelstelling voor 2024** vrijwel **wordt bereikt met een vertraging van één jaar**, en het vormt een belangrijke stap richting de voorgestelde doelstelling van -70 % tegen 2030. Zowel de verkoop van antibacteriële farmaceutica als die van antibacteriële premixen daalde in 2025, waarbij de verkoop van antibacteriële premixen met 22,6 % afnam, wat de **totale reductie van de verkoop van antibacteriële premixen sinds 2011 op 91,5 % brengt**. Hoewel de doelstelling om tegen eind 2026 volledig te stoppen met de productie van antibacteriële premixen nog een aanzienlijke laatste inspanning vergt, lijkt dit wel binnen bereik.

De resultaten voor quinolones waren minder positief. De verkoopcijfers **haalden opnieuw niet de eerdere reductiedoelstelling van -75 %, met slechts -74,6 % ten opzichte van 2011.** Met het oog op de beoogde reductie van -90 % tegen 2030 toont het resultaat van 2025 aan dat er dringend nood is om de onderliggende oorza(a)k(en) van het **aanhoudende gebruik van flumequine bij braadkippen** grondig aan te pakken, wat de belangrijkste verklaring is dat de doelstelling niet werd gehaald. Bovendien verdient het gebruik van krachtigere quinolones bij vleesvee (jonge kalveren) aandacht, ook al komt dit in de verkoopresultaten minder duidelijk naar voren.

Gelukkig **bleef de verkoop van colistine in 2025 ruim onder de grenswaarde van 1 mg/kg biomassa**, namelijk op 0,63 mg/kg biomassa, een daling van 8,9 % ten opzichte van 2024. Bovendien werd de laatste nationale doelstelling, het bereiken van een **maximaal percentage van 1 % alarmgebruikers, in alle categorieën (vrijwel) gehaald, behalve bij de vleeskalveren**, waar nog steeds 2,6 % van de bedrijven langdurige of herhaaldelijke hoge gebruikers blijken te zijn, wat evenwel een daling is ten opzichte van de 3,7 % in 2024.

Het totale gebruik bij **varkens**, gemeten aan de hand van de BD_{100}-species, **daalde in 2025 verder met 16 %** ten opzichte van 2024, leidend tot een **vermindering van 56,2 % sinds 2018.** Verder bevonden in 2025 meer dan 6 op de 10 varkensbedrijven **(61,5 %) zich met al hun varkenscategorieën in het groene benchmarkgebied.** In de meest uitdagende categorieën, de gespeende biggen en de mestvarkens, daalde de mediane BD_{100} in 2025 met ongeveer 15 % ten opzichte van 2024. Daarmee werden sinds 2018 totale reducties van respectievelijk 39,4 % en 46,7 % gerealiseerd; het aandeel bedrijven met een groene benchmarkkleurscore bedroeg respectievelijk 67,5 % en 73,4 %, en dat van bedrijven met een rode benchmarkkleurscore bedroeg ongeveer 3 %. Hoewel de **mediane BD_{100} bij de gespeende biggen** nog altijd de hoogste was van alle onderzochte diercategorieën, daalde de waarde **voor het eerst in drie jaar**. Bovendien daalde het aandeel gebruikte tonnen antibacteriële middelen door varkenscategorieën met een rode benchmarkkleurscore aanzienlijk, van 22 % in 2024 tot 10,5 % in 2025. Over het geheel genomen was **2025 een opmerkelijk jaar van verdere afname van het gebruik van antibacteriële middelen bij varkens**. De sector toont zich vastberaden om zijn verantwoordelijkheid op te nemen en verdient lof voor het voortzetten van het goede werk.

De pluimveesector was de enige sector waarin de BD_{100}-species in 2025 een stijging vertoonde, zij het zeer licht (+ 0,4 %), **waardoor sinds 2018 toch een vermindering van 55 % voor de BD_{100}-species werd gerealiseerd**. In 2025 behaalde 81,5 % van de bedrijven in alle categorieën een groene benchmarkkleur, en slechts 3 % een rode benchmarkkleur. De toename in het gebruik was **meer zichtbaar in de nieuwe vleescategorieën** (kippen en kalkoenen), terwijl bij braadkippen de mediane BD_{100} op bedrijfsniveau met 7 % daalde. De belangrijkste uitdagingen voor de pluimveesector zijn van kwalitatieve aard: **het structureel terugdringen van het gebruik van quinolones bij braadkippen** (goed voor 9 % van alle behandeldagen bij braadkippen) en van **colistine bij leghennen** (goed voor 86 % van alle behandeldagen bij leghennen).

De **vleeskalversector realiseerde in 2025 opnieuw een bescheiden reductie van het gebruik van antibacteriële middelen**, met een afname van 2,5 % in de BD_{100}-species en van 3,4 % van de mediane BD_{100}-waarde op bedrijfsniveau ten opzichte van 2024. **Sinds 2018 werden dalingen van ongeveer 40 tot 45 %** gerealiseerd. Het is bemoedigend dat het percentage vleeskalverenbedrijven met een groene benchmarkkleurscore is gestegen tot 71 %, wat erop wijst dat de beoogde nieuwe BD_{100}-aandachtswaarde van 6 nu binnen bereik komt voor het merendeel van de vleeskalverbedrijven. Ook positief is dat het gebruik van quinolones en colistine stabiel bleef op een laag niveau. De uitdagingen blijven echter aanzienlijk, zoals blijkt uit het **structureel hoge gebruik van antibacteriële middelen in deze sector**. De sector zelf geeft aan dat **verdere vooruitgang in de komende jaren zichtbaar zal worden**, en de samenwerking met alle betrokken stakeholders loopt door, wat van essentieel belang zal zijn om de nodige volgende stappen te identificeren en implementeren.

In hun tweede volledige jaar van nationale, wettelijk verplichte dataverzameling wijzen de resultaten voor **melk- en vleesvee opnieuw op een laag en zelfs dalend gebruik van antibacteriële middelen, maar worden ze overschaduwd door onzekerheid over de nauwkeurigheid en volledigheid van de gegevens.** Stakeholders met terreinervaring wijzen erop dat een belangrijk deel van de gegevens ontbreekt, waarvan de impact slechts indirect kan worden ingeschat, bijvoorbeeld door de verkoop- en gebruiksdata van intramammaire injectiespuiten te vergelijken (een verschil van ongeveer 30 %). De prioriteit van de sector ligt momenteel in het dringend en doortastend aanpakken van dit probleem. Nauwe samenwerking met de bevoegde autoriteiten is aangeraden.

Er is hernieuwde aandacht voor het gebruik van antibacteriële middelen bij gezelschapsdieren, met de aankomende verplichting van de Europese Commissie om uiterlijk tegen 2029 gegevens over het gebruik van antibacteriële middelen bij gezelschapsdieren te verzamelen. In overeenstemming met de ESUAvet-rapporten blijkt uit een analyse op Belgisch niveau van de verkoopdata voor '**andere gehouden of gefokte dieren**', op basis van de noemergegevens uit de jaarlijkse FEDIAF-rapporten, een **stijging van 8,5 % in de hoeveelheid verkochte antibacteriële middelen (in mg per kg biomassa) voor deze diersoorten in België tussen 2022 en 2023, maar een status-quo tussen 2023 en 2024**. In **2025 laten de niet-gestandaardiseerde gegevens een aanzienlijke daling zien**. In toekomstige rapporten zal moeten worden onderzocht hoe dit zich verhoudt tot de honden- en kattenpopulatie in België. Deze resultaten benadrukken de noodzaak van correcte gebruiksdata voor niet-voedselproducerende dieren en suggereren dat het gebruik van antibacteriële middelen bij gezelschapsdieren van dezelfde grootteorde is als momenteel bij voedselproducerende dieren. Dit benadrukt dat de sector van de gezelschapsdieren **zijn eigen verantwoordelijkheden heeft in de strijd tegen AMR, vooral gelet op het nauwe contact tussen huisdiereigenaars en hun dieren, wat een wederzijds risico vormt voor de verspreiding van AMR**.

Naast de problematische resultaten voor het gebruik van quinolones blijkt uit de kwalitatieve analyse van de verkoop- en gebruiksdata dat aminopenicillines, tetracyclines, combinaties van trimethoprim-sulfamide en macroliden in 2025 de meest verkochte en gebruikte antibacteriële klassen blijven, met name via orale toediening. **Bijna alle klassen van antibacteriële middelen vertoonden een daling in de verkochte hoeveelheid, met uitzondering van quinolones en pleuromutilinen**.

Als besluit blijft het monitoren van de verkoop en het gebruik van antibacteriële diergeneesmiddelen essentieel in de nationale strategie tegen antimicrobiële resistentie. **Blijvende samenwerking en inzet** van alle stakeholders zullen van essentieel belang zijn om de noodzakelijke reducties verder te stimuleren. Alleen door **gezamenlijke inspanningen** kan een gezond en duurzaam niveau van het gebruik van antibacteriële middelen worden bereikt, dat de diergezondheid waarborgt en bescherming biedt tegen de toenemende dreiging van antibacteriële resistentie voor de diergezondheid, de economie en de volksgezondheid.

Het is duidelijk dat een **verdere uitbreiding van de verzameling van gebruiksdata** meer inzichten zal opleveren, maar alleen als de dierenartsen de gebruiksdata op een nauwkeurige manier registreren. Gegevens van hoge kwaliteit zijn namelijk onmisbaar: zonder deze gegevens kunnen noch de interpretatie van de resultaten, noch het beleid dat daaruit voortvloeit, op een sterke basis rusten. Het is ook duidelijk dat de opname van andere voedselproducerende dieren, in combinatie met de invoering van een nieuw systeem voor dataverzameling (VAMREG), de aard van de dataverzameling en -analyse ingrijpend zal veranderen.

Sensibilisering en ondersteuning zijn aangewezen, en uitgebreide controles kunnen noodzakelijk zijn. Het is van cruciaal belang dat deze inspanningen door alle stakeholders worden geleverd, waarbij zij gezamenlijk de verantwoordelijkheid dragen om ervoor te zorgen dat de verzameling, verwerking, analyse en rapportering van deze nieuwe gegevens beheersbaar blijven, ook al zal dit veel tijd en middelen vergen.

In afwachting van de inwerkingtreding van de nieuwe doelstellingen voor 2030 blijkt uit de resultaten voor 2025 dat **doelstellingen in de eerste plaats dienen als instrument om een operationeel kader te creëren voor duurzame en verantwoorde reducties, en niet zozeer als doel op zich**. Zodra het terrein in beweging is gezet, kan de inzet voor vermindering resultaten opleveren, onafhankelijk van de doelstellingen. Tegelijk moet worden benadrukt dat **dierenwelzijn belangrijk blijft en dat een blijvende focus op ziektepreventie en beheersmaatregelen essentieel is**. Dit zijn belangrijke lessen voor toekomstige discussies over het beleid rond het gebruik van antibacteriële middelen bij dieren.

RESUME

Ce 17e rapport BelVet-SAC présente les résultats des ventes et de l'utilisation des médicaments à usage vétérinaire antibactériens (MVA) chez les animaux en Belgique en 2025, ainsi qu'une analyse de leur évolution au fil des ans.

Comme les années précédentes, les données sur les ventes ont été collectées au niveau des **fabricants d'aliments médicamenteux (prémélanges antibactériens)** et des **détenteurs d'une autorisation de mise sur le marché (AMM)** pour les MVA antibactériens en Belgique (**produits pharmaceutiques antibactériens**) ; les données relatives à l'utilisation proviennent des enregistrements dans **SANITEL-MED**. Comme dans les rapports précédents, l'analyse inclut également les ventes d'« **autres animaux détenus ou élevés** ». Ces données sont basées sur les AMMs par espèce et harmonisées à l'aide des données sur les populations de chats et de chiens issues des rapports annuels de la Fédération européenne de l'industrie des aliments pour animaux familiers (FEDIAF).

Au niveau politique, **2025 a été une année de transition**, entre la fin de l'année cible précédente (2024) et la mise en œuvre officielle des nouveaux objectifs à l'horizon 2030, prévue en 2026. Néanmoins, les ventes d'antibactériens ont atteint un **niveau historiquement bas de 51,4 mg/kg de biomasse en 2025**, soit une baisse de près de 13 % par rapport à 2024, reprenant ainsi leur tendance à la baisse à long terme. Cela correspond à une **réduction totale de 64,9 % depuis 2011**, ce qui revient pratiquement à **atteindre l'objectif fixé pour 2024 avec un an de retard**, et marque une étape importante vers l'objectif de -70 % proposé pour 2030. Les ventes de médicaments antibactériens et de prémélanges antibactériens ont toutes deux diminué en 2025, ces dernières reculant de 22,6 %, portant la réduction totale à **91,5 % depuis 2011**. Même si l'objectif consistant à mettre fin à toute production de prémélanges antibactériens d'ici fin 2026 nécessite encore un dernier effort considérable, il semble désormais à portée de main.

Les résultats concernant les quinolones se sont révélés moins concluants. Leurs résultats de vente **n'ont une nouvelle fois pas atteint l'objectif de réduction de -75 % fixé précédemment, s'établissant à seulement -74,6 % par rapport à 2011**. Avec une réduction de 90 % prévue pour 2030, les résultats de 2025 montrent qu'il est urgent de s'attaquer sérieusement à la ou aux causes profondes de **l'utilisation persistante de la fluméquine chez les poulets de chair** – ce qui constitue la principale explication pour laquelle l'objectif n'a pas été atteint. Par ailleurs, bien que cela se reflète moins dans les résultats commerciaux, l'utilisation de quinolones plus puissantes chez les bovins viandeux (jeunes veaux) mérite qu'on s'y attarde.

Heureusement, **les ventes de colistine sont restées largement en deçà du seuil de 1 mg/kg de biomasse** en 2025, s'établissant à 0,63 mg/kg de biomasse, soit une baisse de 8,9 % par rapport à 2024. Par ailleurs, le dernier objectif national, à savoir limiter à **1 % au maximum le nombre d'utilisateurs en zone d'alarme, a été (pratiquement) atteint dans toutes les catégories, à l'exception des veaux de boucherie**, où 2,6 % des exploitations semblent encore être des utilisateurs intensifs à long terme ou récurrents, bien que ce chiffre soit en baisse par rapport aux 3,7 % enregistrés en 2024.

L'utilisation totale chez les **porcs**, telle que quantifiée avec le BD_{100}-espèces, a encore **diminué de 16 % en 2025** par rapport à 2024, ce qui représente une **baisse de 56,2 % depuis 2018.** Par ailleurs, en 2025, plus de 6 élevages porcins sur 10 (**61,5 %) présentaient toutes leurs catégories dans la zone de référence verte**. Dans les catégories les plus difficiles, à savoir les porcelets sevrés et les porcs d'engraissement, la médiane du BD_{100} a diminué d'environ 15 % en 2025 par rapport à 2024, ce qui

correspond respectivement à des réductions totales de 39,4 % et 46,7 % depuis 2018 ; la part des exploitations ayant obtenu un score de référence « vert » a atteint respectivement 67,5 % et 73,4 %, tandis que celle des exploitations ayant obtenu un score de référence « rouge » s'est élevée à environ 3 %. Bien que la **médiane du BD_{100} chez les porcelets sevrés** soit restée la plus élevée de toutes les catégories d'animaux suivies, cette valeur **a diminué pour la première fois en trois ans**. De plus, la part, en tonnes, d'antibactériens utilisés par les catégories de porcs présentant un score de référence de couleur rouge a considérablement diminué, passant de 22 % en 2024 à 10,5 % en 2025. Dans l'ensemble, **2025 a été une année remarquable, marquée par la poursuite de la réduction de l'utilisation des agents antibactériens chez les porcs**. Le secteur fait preuve d'une grande détermination à assumer ses responsabilités et mérite d'être salué pour la qualité de son travail.

La volaille a été le seul secteur où le BD_{100}-espèces a augmenté en 2025, bien que très légèrement (+ 0,4 %), **tout en enregistrant une baisse de 55 % du BD_{100}-espèces depuis 2018**. En 2025, 81,5 % des exploitations agricoles ont obtenu le score de référence vert pour toutes les catégories, tandis que seulement 3 % ont obtenu le score de référence rouge. Cette augmentation de l'utilisation a été **plus marquée dans les nouvelles catégories de viande** (poulet et dinde), tandis que chez les poulets de chair, la médiane du BD_{100} au niveau des exploitations a diminué de 7 %. Les principaux défis auxquels est confronté le secteur avicole sont d'ordre qualitatif : **réduire de manière structurelle l'utilisation des quinolones chez les poulets de chair** (qui représentent 9 % du nombre total de jours de traitement chez ces animaux) et de la **colistine chez les poules pondeuses** (qui représentent 86 % du nombre total de jours de traitement chez ces dernières).

Le secteur **des veaux de boucherie a enregistré une nouvelle baisse modérée de l'utilisation d'antibactériens en 2025**, avec une diminution de 2,5 % de sa valeur BD_{100}-espèces et une baisse de 3,4 % de la valeur médiane du BD_{100} au niveau des exploitations par rapport à 2024. **Depuis 2018, des réductions comprises entre 40 et 45 %** ont été réalisées. Il est rassurant de constater que le pourcentage d'élevages de veaux de boucherie ayant obtenu un score de référence vert a augmenté pour atteindre 71 %, ce qui suggère que la nouvelle valeur d'attention, un BD_{100} de 6, est désormais à la portée de la majorité de ces élevages. Il est également positif de constater que l'utilisation des quinolones et de la colistine est restée stable à des niveaux faibles. Les défis restent toutefois considérables, comme en témoigne **l'utilisation structurellement élevée d'antibactériens dans ce secteur**. Le secteur lui-même prévoit que **de nouveaux progrès seront visibles dans les années à venir**, et la collaboration avec l'ensemble des parties prenantes concernées se poursuit, ce qui sera essentiel pour identifier et mettre en œuvre les prochaines étapes nécessaires.

Au cours de leur deuxième année complète de collecte de données à l'échelle nationale, obligatoire en vertu de la loi, les résultats concernant **les bovins laitiers et viandeux indiquent à nouveau une utilisation faible, voire en baisse, des antibactériens, mais sont éclipsés par l'incertitude quant à l'exactitude et à l'exhaustivité des données**. Les acteurs du secteur ayant une expérience de terrain laissent entendre qu'une partie importante des données fait défaut, dont l'impact ne peut être évalué qu'indirectement, par exemple en comparant les données relatives aux ventes et à l'utilisation des tubes intramammaires (écart d'environ 30 %). La priorité du secteur à ce stade est de s'attaquer à ce problème de manière urgente et résolue. Il est recommandé de travailler en étroite collaboration avec les autorités compétentes.

L'utilisation d'antibactériens chez les animaux de compagnie suscite un regain d'intérêt, la Commission européenne s'apprêtant à imposer l'obligation de collecter des données sur l'utilisation d'antibactériens chez ces animaux d'ici 2029 au plus tard. Conformément aux rapports de l'ESUAvet, une analyse au niveau belge des données de vente concernant les « **autres animaux détenus ou élevés**», s'appuyant sur les données du dénominateur issues des rapports annuels de la FEDIAF, fait état d'une **augmentation de 8,5 % de la quantité d'antibactériens vendus (en mg par kg de biomasse) pour ces espèces en Belgique entre 2022 et 2023, mais un statu quo entre 2023 et 2024**. En **2025, les données non standardisées indiquent une baisse considérable**. Les prochains rapports devront déterminer dans quelle mesure cela se rapporte à la population canine et féline en Belgique. Ces résultats soulignent la nécessité de disposer de données fiables sur l'utilisation chez les animaux non destinés à la production alimentaire et suggèrent que l'utilisation d'antibactériens chez les animaux de compagnie se situe dans une fourchette comparable à celle observée chez les animaux destinés à la production alimentaire. Cela met en évidence que le secteur des animaux de compagnie **a ses propres responsabilités à assumer dans la lutte contre l'AMR, d'autant plus que le contact étroit entre les propriétaires et leurs animaux de compagnie présente un risque mutuel de propagation de cette AMR**.

Outre les résultats préoccupants liés à l'utilisation des quinolones, l'analyse qualitative des données relatives aux ventes et à l'utilisation montre que les aminopénicillines, les tétracyclines, les associations triméthoprime-sulfamide et les macrolides restent les médicaments les plus vendus et les plus utilisés en 2025, notamment par voie orale. **Presque toutes les classes d'antibactériens ont enregistré une baisse de leurs volumes de vente, à l'exception des quinolones et des pleuromutilines**.

En conclusion, la surveillance des ventes et de l'utilisation des médicaments à usage vétérinaire antibactériens reste un pilier de la stratégie nationale de lutte contre la résistance aux antimicrobiens. **Une collaboration et un engagement soutenus** de la part de toutes les parties prenantes seront essentiels pour poursuivre les réductions nécessaires. Ce n'est que grâce à **des efforts conjoints** qu'il sera possible d'atteindre un niveau d'utilisation d'antibactériens sain et durable, garantissant la santé animale et offrant une protection contre la menace croissante que représente la résistance aux antibactériens pour la santé animale, l'économie et la santé publique.

Il est évident qu'un **élargissement de la collecte des données d'utilisation** permettra d'obtenir des informations supplémentaires, mais uniquement si la déclaration d'utilisation est effectuée de manière rigoureuse par les vétérinaires. En effet, des données de grande qualité sont indispensables : sans elles, ni l'interprétation des résultats, ni les politiques qui en découlent ne peuvent reposer sur des bases solides. Il est également évident que l'intégration d'autres animaux destinés à la production alimentaire, associée à la mise en place d'un nouveau système de collecte de données (VAMREG), va modifier en profondeur la nature même de la collecte et de l'analyse des données.

Il est recommandé de mener des actions de sensibilisation et d'apporter un soutien, et des contrôles approfondis pourraient s'avérer nécessaires. Il est essentiel que ces efforts soient menés par l'ensemble des parties prenantes, qui doivent assumer conjointement la responsabilité de veiller à ce que la collecte, le traitement, l'analyse et la communication de ces nouvelles données puissent être gérés efficacement, même si cela exigera beaucoup de temps et de ressources.

En prévision de l'entrée en vigueur des nouveaux objectifs pour 2030, les résultats de 2025 montrent que ces objectifs servent avant tout à établir un cadre opérationnel permettant des réductions durables et responsables, plutôt que d'être une fin en soi. Une fois que le processus est lancé, l'engagement en faveur de la réduction peut porter ses fruits, indépendamment des objectifs fixés. Il convient toutefois de souligner que le bien-être animal reste une priorité et qu'il est essentiel de continuer à mettre l'accent sur les mesures de prévention et de lutte contre les maladies. Il s'agit là d'enseignements essentiels pour les futurs débats concernant la politique relative à l'utilisation des antibactériens chez les animaux.

AUTHORS

The 2025 data collection and analysis are performed by the Belgian Federal Agency for Medicines and Health products (FAHMP) and the Data Science and Analysis Unit of the center of expertise on Antimicrobial Consumption and Resistance in Animals (AMCRA).

The data collection of the sales data and the analysis of the sales data was performed by:

Jonathan Lete, Dr. Antita Adriaens, Dr. Lies Van Nieuwenhove, Apr. Inge Vandenbulcke

DG PRE Medicines for Veterinary Use Division,

Antimicrobial Resistance Entity

Federal Agency for Medicines and Health Products

Belgium

The analysis of the use data was performed by:

Dr. Wannes Vanderhaeghen, Dr. Ir. Maries Lissens, Ir. Philippe Van Vreckem

AMCRA vzw

Belgium

The report was written by:

Dr. Wannes Vanderhaeghen, Dr. Ir. Maries Lissens, Dr. Fabiana Dal Pozzo

AMCRA vzw

Belgium

Dr. Lies Van Nieuwenhove, Apr. Inge Vandenbulcke, Dr. Antita Adriaens, Jonathan Lete

DG PRE Medicines for Veterinary Use Division,

Antimicrobial Resistance Entity

Federal Agency for Medicines and Health Products

Belgium

Funded by the Belgian Federal Agency for Medicines and Health products

Suggested citation: *Belgian Veterinary Surveillance on Antimicrobial Consumption report 2025 (BelVet-SAC 2025). Brussels: Federal Agency for Medicines and Health Products.*

Contact: amr.vet@fagg-afmps.be

DEFINITIONS AND ABBREVIATIONS

AB	Antibacterial
AMCRA	Centre of expertise on Antimicrobial Consumption and Resistance in Animals
AMR	Antimicrobial Resistance
ASU	Antimicrobial Sales and Use
BD_{100}	BehandelDagen out of 100 – Indicator which represents the % of time an animal is treated with antibacterials
BLI	Beta Lactamase Inhibitor
CIA	Critically Important Antibacterials (fluoro)quinolones and cephalosporins of the 3rd and 4th generation)
DC	Dry Cow
$DDDA_{bel}$	Defined Daily Dose Animal for Belgium
EMA	European Medicines Agency
ESVAC	European Surveillance of Veterinary Antimicrobial Consumption project
ESUAvet	European Sales and Use of Antimicrobials for veterinary medicinal products
FAMHP	Belgian Federal Agency for Medicines and Health Products
FASFC	Belgian Federal Agency for the Safety of the Food Chain
LA_{bel}	Long-Acting factor defined for Belgium
LC	Lactating Cow
MAH	Market Authorisation Holder
MMF	Manufacturers of Medicated Feed
SDP	Self-Defined Product
SmPC	Summary of Product Characteristics
VMP	Veterinary Medicinal Product

TABLE OF CONTENTS

INTRODUCTION AND SCOPE

This 17th BelVet-SAC report presents the sales and use of antibacterial veterinary medicinal products (VMPs) in animals in Belgium in 2025, and their evolution over the years.

Over the past 15 years, Belgium has achieved substantial progress in reducing veterinary antibacterial use. Yet, vigilance remains essential, as antibacterial use in both human and veterinary medicine remains a key driver in the emergence and spread of antimicrobial resistance (AMR).

AMR is a global "One Health" issue that threatens the future of human and veterinary medicinal treatment and antibacterial agents remain essential tools for safeguarding animal health and welfare. Their responsible use supports the sustainability of livestock production systems and ensures appropriate care for companion animals. At the same time, the continued emergence and spread of AMR underline the need for careful monitoring and stewardship across all sectors. In recent years, Belgium has strengthened its commitment to reducing unnecessary antibacterial use in animals through coordinated actions involving veterinary practitioners, livestock sectors, regulatory authorities, and research institutions. These efforts are embedded within the broader One Health framework, which recognises the interconnectedness of human, animal, and environmental health.

Within this context, the BelVet-SAC report provides an annual overview of antibacterial sales and use in veterinary medicine in Belgium. The report aims to offer a transparent and consistent picture of national trends, enabling stakeholders to assess progress toward established reduction objectives and to identify areas where further improvement is required. By presenting standardised data and long-term indicators, the report supports evidence-based policy development and facilitates constructive dialogue among all actors involved in antimicrobial stewardship. Over time, the BelVet-SAC dataset has become an important reference for evaluating the impact of sectoral initiatives, regulatory measures, and changes in veterinary practice.

The continued availability of reliable data is essential for understanding how antibacterial use evolves in response to disease pressure, management practices, and the implementation of targeted interventions. The BelVet-SAC report contributes to this understanding by documenting quantitative patterns and situating them within the broader national and European context. Through this annual monitoring, Belgium maintains its commitment to responsible antibacterial use and to the ongoing efforts required to mitigate antimicrobial resistance.

Scope

This 17th BelVet-SAC report includes results on antibacterial VMPs intended for food-producing animals and companion animals, based on information provided by marketing authorization holders, manufacturers of medicated feed, veterinarians and farmers. The scope covers the total sales volumes, use indicators at species or sector level, temporal trends, and comparisons with national reduction targets. The report focuses on quantitative use patterns and does not include analyses of AMR or clinical outcomes. Where relevant, contextual information is provided to support interpretation of the data. The methodology and data sources used aim to ensure continuity and comparability with the previous BelVet-SAC reports over time.

We wish you an interesting and pleasant reading!

RESULTS

TOTAL SALES AND USE OF ANTIBACTERIAL VMPS IN BELGIUM

Number of antibacterial VMPs available on the Belgian market

Table 1 provides an overview of the number of antibacterial pharmaceuticals and antibacterial premixes available on the Belgian market since 2018 according to the commented compendium of the Belgian Centre for Pharmacotherapeutic Information[1].

The only new antibacterial substances registered on the market in the last 15 years are products containing tildipirosin (2011), pradofloxacine (2011), fusidic acid (2014), thiamfenicol (2015), and cefadroxil (2019). The observed increase in available VMPs since 2021 is mainly due to the marketing of new formulations or new generic VMPs based on existing active antibacterial substances. In 2025, the number of VMPs decreased for both pharmaceuticals and premixes.

Table 1. Antibacterial VMPs on the Belgian market from 2018 to 2025.

	2018	2019	2020	2021	2022	2023	2024	2025
Number of veterinary antibacterial pharmaceuticals on the market	325	326	308	327	346	353	368	346
Number of veterinary antibacterial premixes on the market	18	13	15	14	13	14	12	9
Total number of antibacterial VMPs on the market	343	339	323	341	359	367	380	355

Table 2 gives an idea of the available VMPs with a critically important active antibacterial substance per target species. These VMPs can be indicated for several species and thus appear under more than one species. Compared to 2024, a slight increase is noted for cefovecin and ceftiofur. For enrofloxacin, the distribution changed slightly but overall, the number of VMPs remains the same. For marbofloxacin and pradofloxacin, there was a decrease in the number of VMPs.

[1] www.bcfi-vet.be

Table 2. Antibacterial VMPs belonging to the critically important antibacterial classes on the Belgian market in 2025 per target species.

AB class / Active substance	Target species									
	Cat	Cattle	Dog	Goat	Ornamental bird	Pig	Poultry	Rabbit	Sheep	Other or not known
Cephalosporins of 3rd and 4th generation										
Cefoperazone		1								
Cefovecin	2		2							
Cefquinome		4				1				
Ceftiofur		9				8				
Quinolones										
Danofloxacin		1								
Enrofloxacin	7	6	8	2	4	6	6	9	2	4
Flumequine		1					1			
Marbofloxacin	1	6	5			4				
Orbifloxacin			2							
Pradofloxacin	1									

Non-standardised total sales of antibacterial VMPs in Belgium

a) Response rate and data validation

Out of the 56 marketing authorization holders (MAH) with authorised antibacterial VMPs in Belgium, all responded to the inquiry. Of the 34 contacted manufacturers of medicated feed (MMF), all 34 responded to the call for data, with 4 declaring to have ceased activities.

The sales data from the MMF were a bit higher than the amount reported in the use data in 2025 (SANITEL-MED, see further). Overall, it was concluded that the data from the MMF covered 100% of the sales of antibacterial premixes in Belgium in 2025. Upon recontacting, all MMF verified that the data were reported in number of packages.

b) Non-standardised total sales of antibacterial VMPs in Belgium since 2018

The total sales of antibacterial VMPs for veterinary use in Belgium since 2018, in tonnes of active substance per year since 2018, is presented in ***Figure 1***. The results are divided into antibacterial pharmaceuticals and antibacterial premixes. Sales of antibacterial pharmaceuticals were reported using data from the VMP distributors until 2021. Since 2022, the sales of pharmaceuticals are based on data from the MAHs (see Annex I – Materials and Methods).

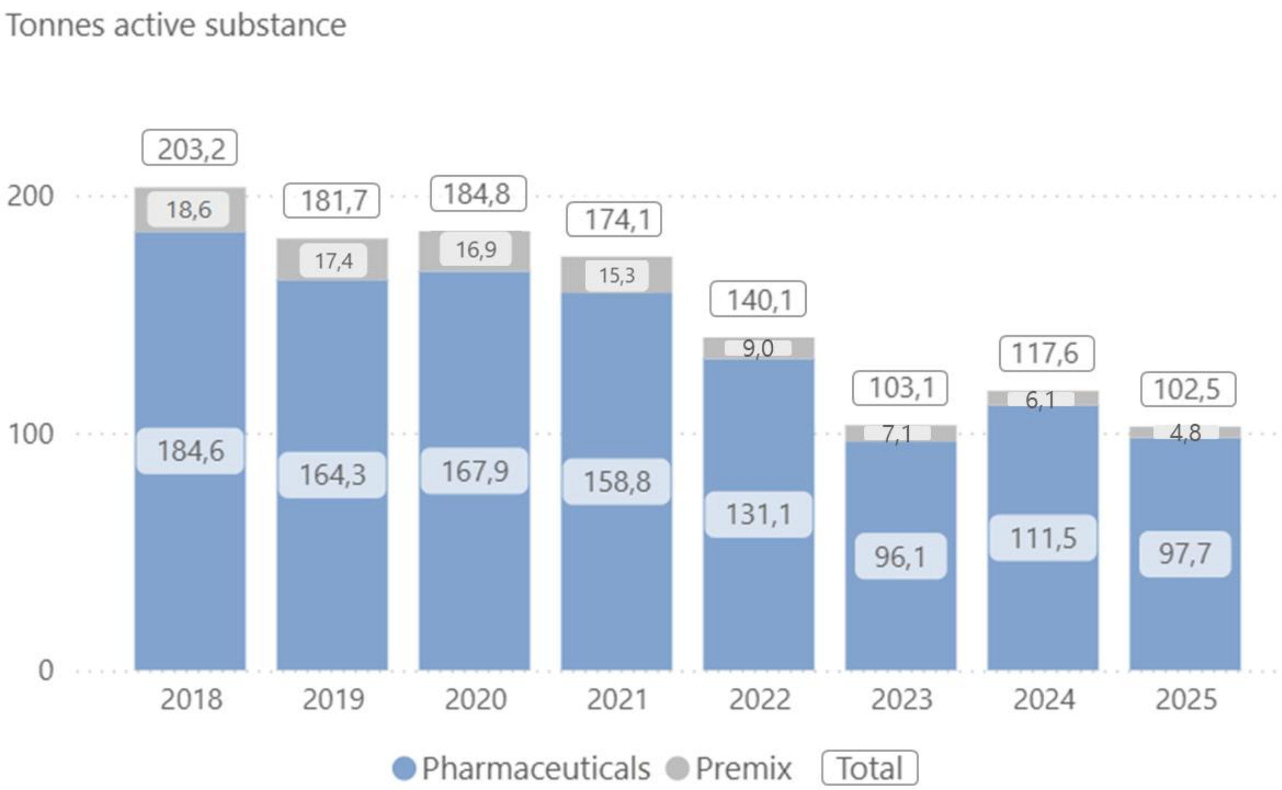


Figure 1. Total, non-standardised national sales in tonnes active substance of antibacterial VMPs via the distributors (antibacterial pharmaceuticals, until 2021), the MAHs (antibacterial pharmaceuticals, as of 2022) and the MMF (antibacterial premixes) in Belgium for the period 2018-2025.

After a sharp decline in total sales between 2021 and 2023, we recorded a 14,0 % increase in 2024, driven entirely by pharmaceuticals, which rose by 16.0 % compared with 2023. In 2025, total sales fell again, dropping slightly below the 2023 level (-12,8 % compared to 2024). Pharmaceuticals decreased by 12,4 %, while premixes continued their steady downward trend (-21,3 %).

It is important to note that, as for the years 2022 to 2024, the available data still not allow for a definitive conclusion that the sales figures from the MAHs fully represent the total sales of antibacterial products for animals in Belgium in 2025. Indeed, the new European legislation 2019/6, in force since 2022, allows veterinarians and pharmacies to purchase VMPs from distributors or manufacturers, including MAHs with the appropriate authorisation in other member states. Currently, data on these purchases from abroad are not yet captured.

Non-standardised total SANITEL-MED use data

a) Antibacterial use registrations in SANITEL-MED

Table 3 shows the number of antibacterial (AB) registrations in SANITEL-MED in 2025 (accession date: 17/04/2026), the number of farms for which notifications were made and the number of veterinarians that registered the notifications, in total and per species. As points of reference, the data for 2018 (the first full year of SANITEL-MED data collection) and for 2024 are added.

Table 3. Number of AB-registrations (ZnO for 2018 not included) and number of farms and veterinarians with notifications per animal species in SANITEL-MED in 2025, 2024 and 2018.

	YEAR	TOTAL	PIGS		POULTRY[1]		VEAL CALVES		CATTLE MILK/BEEF	
		n	AB n	%	AB n	%	AB n	%	AB n	%
AB-registrations	**2025**	**707 341**	**76 696**	***11***	**16 340**	***2***	**18 665**	***3***	**595 640**	***84***
	2024	756 941	86 535	*11*	16 286	*2*	18 369	*2*	635 751	*84*
	2018	164 479	127 298	*77*	18 130	*11*	19 051	*12*	-	-
Farms	**2025**	**14 870**	**3 133**	***21***	**913**	***6***	**285**	***2***	**11 681**	***79***
	2024	15 076	3 372	*22*	885	*6*	241	*2*	11 738	*78*
	2018	5 204	4 325	*83*	745	*14*	258	*5*	-	-
Veterinarians	**2025**	**1 006**	**183**	***18***	**49**	***5***	**26**	***3***	**881**	***88***
	2024	975	193	*20*	52	*5*	17	*2*	849	*87*
	2018	323	270	*84*	63	*20*	20	*6*	-	-

[1] The data for 2018 only concern broilers and laying hens; the data for 2024 and 2025 additionally include the categories: lay rearing – propagation – selection; meat rearing – propagation – selection; lay propagation – selection; meat propagation – selection; lay rearing; turkey breed; turkey meat; hatching eggs; day-old chicks.

In 2025 dairy and beef cattle remained the leading sector on all terms. As noted in previous BelVet-SAC reports, the number of registrations is not directly linked to the quantity of antibacterials used, as a notification can just as well represent the treatment of a single animal, with a few ml of a VMP, as the use of a whole package for a group of animals.

In 2025, the numbers related to poultry continued to increase, even though the inclusion of the new chicken and turkey categories dates already from 2023. Remarkably, after several years of a downward trend in the veal calf sector, the number of (active) farms and veterinarians with AB-registrations increased dramatically in 2025. Consultation with the sector revealed this being a result of many new 'rosé calf' farms having started in 2025, especially in the second half of the year. It is also remarkable that even though the number of farms and registrations declined in cattle in 2025, the number of veterinarians with AB-registrations increased, suggesting that the mandatory AB-registration is becoming better integrated and more routinely used in the cattle sector. This is different from pigs, where the decrease occurs over all the reported parameters.

b) Comparison of the non-standardised total SANITEL-MED use data with total sales data

The mass antibacterials calculated from the SANITEL-MED notifications reached a total of 88,9 tonnes in 2025 (***Figure 2***), covering 86,8 % of the overall sales data of 2025: 86,3 % coverage for the antibacterial pharmaceuticals and 95,4 % coverage for antibacterial premixes.

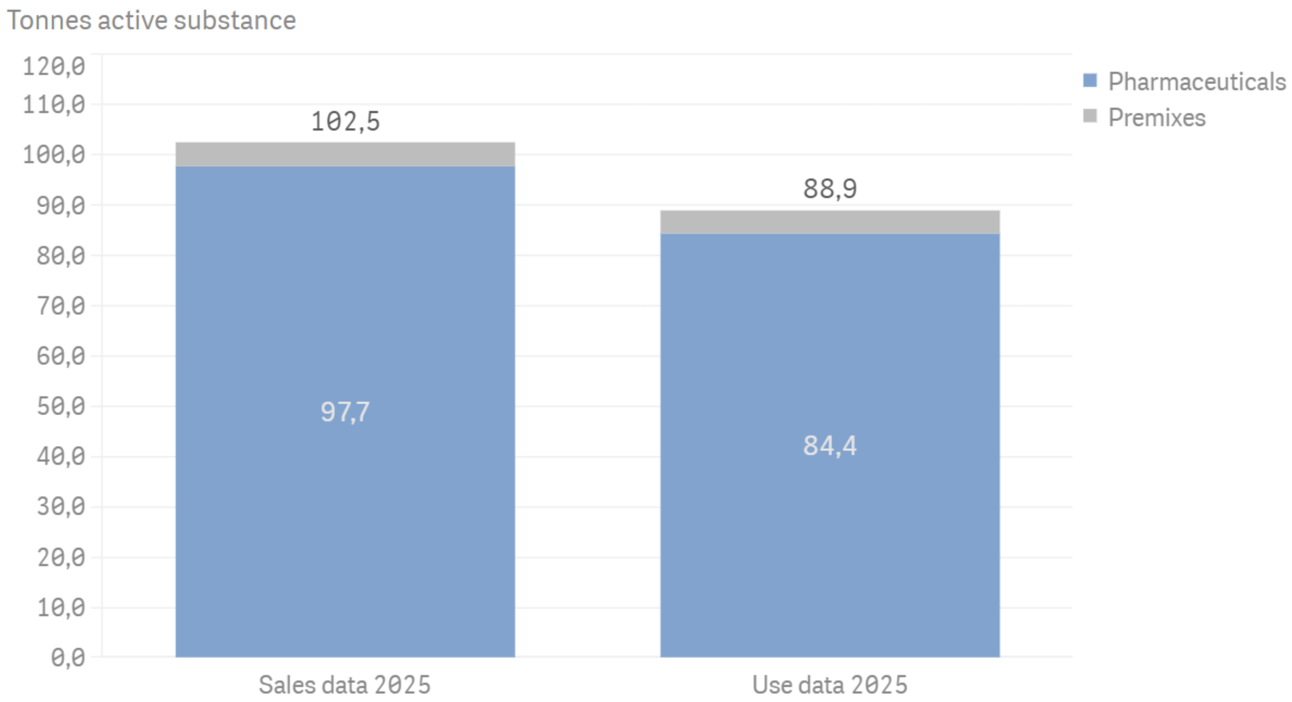


Figure 2. Comparison of tonnes of active antibacterial substance used (SANITEL-MED) with the tonnes sold by the MAHs and MMF for 2025, distinguishing between antibacterial pharmaceuticals and antibacterial premixes.

Compared to last year's result, the gap between the sold and used quantity decreased, to 13,6 tonnes (***Figure 3***). Also in 2025, when leaving out the quantity used in cattle and the extra poultry categories, overall coverage was 73,2 % and the sales-use gap amounted to 27,4 tonnes – numbers in line with previous years.

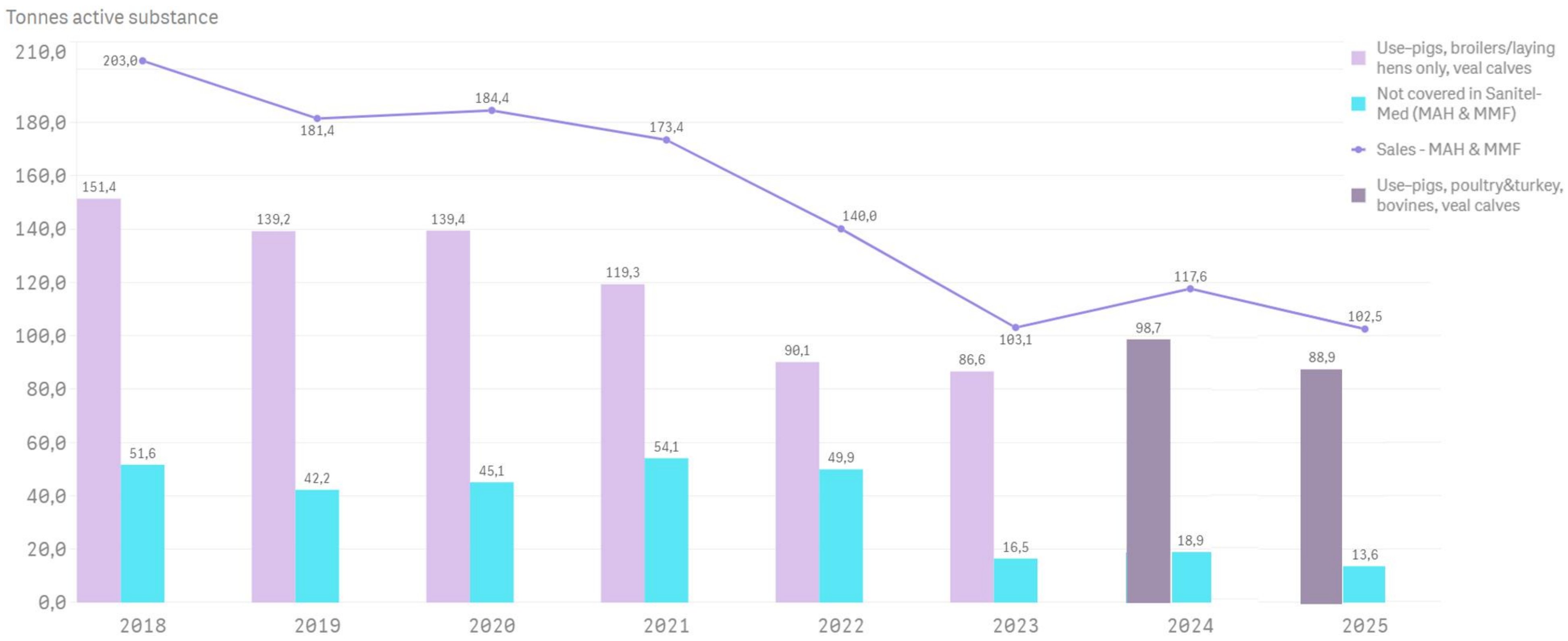


Figure 3. Comparison of tonnes of active antibacterial substance used (SANITEL-MED) with the corresponding Belgian sales from the distributors (until 2021), MAHs (as of 2022) and MMF (2018-2025). The discrepancy between 'sales' and 'use' is also shown (= "Not covered in SANITEL-MED"). A different colour is applied in the used quantity of 2024 and 2025 to emphasise the inclusion of the beef and dairy cattle and additional poultry categories in the result, whereas the use data for 2018-2023 only include pigs, broilers, laying hens and veal calves. The sales data cover all animal species, food- and non-food producing.

Animal biomass produced in Belgium in 2025

Table 4 illustrates that the produced biomass of animals in Belgium **decreased with 0,1 %** between 2024 and 2025.

Pork and poultry production increased in 2025, whereas production of ruminants decreased.

Table 4. Animal biomass produced in Belgium from 2020 to 2025.

Animal biomass	2020	2021	2022	2023	2024	2025
Meat (tonnes)						
Pork	1 098 714	1 140 002	1 032 197	929 740	945 176	950 958
Beef	254 509	247 122	238 137	240 180	249 435	229 417
Poultry	448 974	455 115	449 039	428 196	538 523	549 558
Sheep/goat	2 845	3 058	2 514	2 189	1 905	1 756
Biomass from meat production	**1 805 042**	**1 845 297**	**1 721 886**	**1 600 305**	**1 735 039**	**1 731 689**
Dairy cattle						
Dairy cattle (number)	537 941	537 246	543 680	535 548	518 358	522 545
Dairy cattle metabolic weight (tonnes)	268 971	268 623	271 840	267 774	259 179	261 273
Total biomass (tonnes)	**2 074 013**	**2 113 920**	**1 993 726**	**1 868 079**	**1 994 218**	**1 992 962**
Evolution since previous year	**+2,6%**	**+1,9%**	**-5,7%**	**-6,3%**	**+6,8%**	**-0,1%**

Total sales of antibacterial VMPs in Belgium standardised per kg biomass

In 2025, the amount of active antibacterial substance (in mg), sold via the MAHs for pharmaceuticals and via the MMF for premixes, in relation to the biomass produced (in kg) was **51,4 mg/kg**, coming from **59,0 mg/kg** in 2024 (*Figure 4*). This represents **a decrease of 7,6 mg/kg or -12,9 % between 2024 and 2025** (*Figure 5*). This decrease results from a 22,6 % reduction in premixes and a 12,3 % reduction in pharmaceuticals sales.

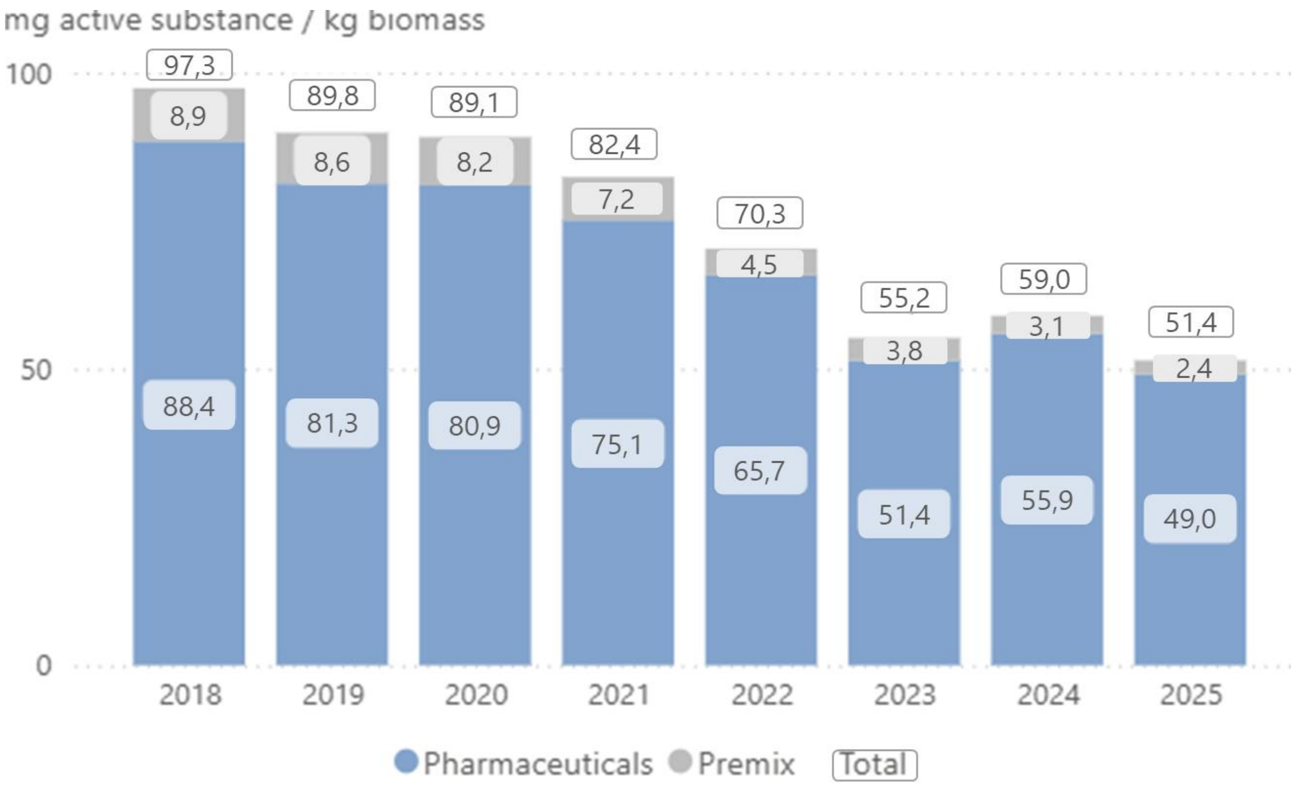


Figure 4. Sales of antibacterial pharmaceuticals and antibacterial premixes in mg/kg biomass for animals in Belgium in 2018-2025, consisting of data from the MMF for premixes for 2018-2025, from the distributors for pharmaceuticals for 2018-2021 and from the MAHs for pharmaceuticals for 2022-2025.

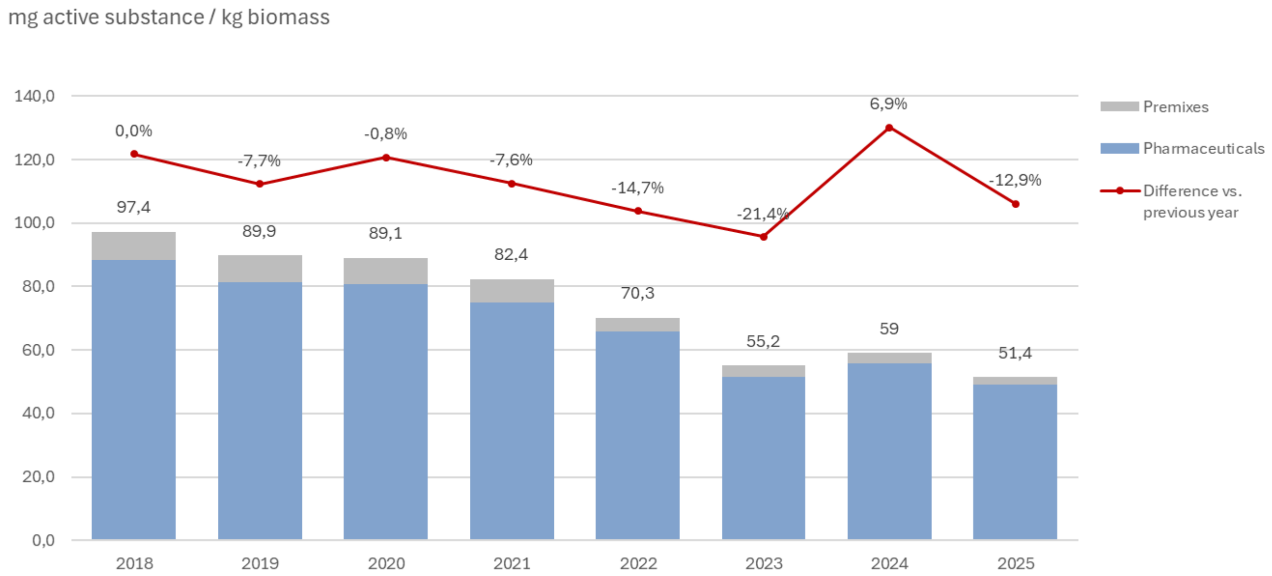


Figure 5. Year-to-year evolution of the total sales of antibacterial VMPs in Belgium based on the sales data since 2018 as presented in *Figure 4*.

SALES AND USE OF ANTIBACTERIAL VMPS PER ANIMAL SPECIES AND CATEGORY

Non-standardised SANITEL-MED use data per animal species/category

In absolute quantities, pigs remain by far the largest consumers of antibacterial substances, but their share continues to decline. In 2025, it was 50,3 %, almost equalling the combined share of cattle, veal calves and poultry (49,7 %) (***Figure 6***). The dairy and beef cattle sector, despite its predominance in number of notifications, veterinarians and farms, has a quantity of used tonnes that is in the range of the much smaller veal calf sector.

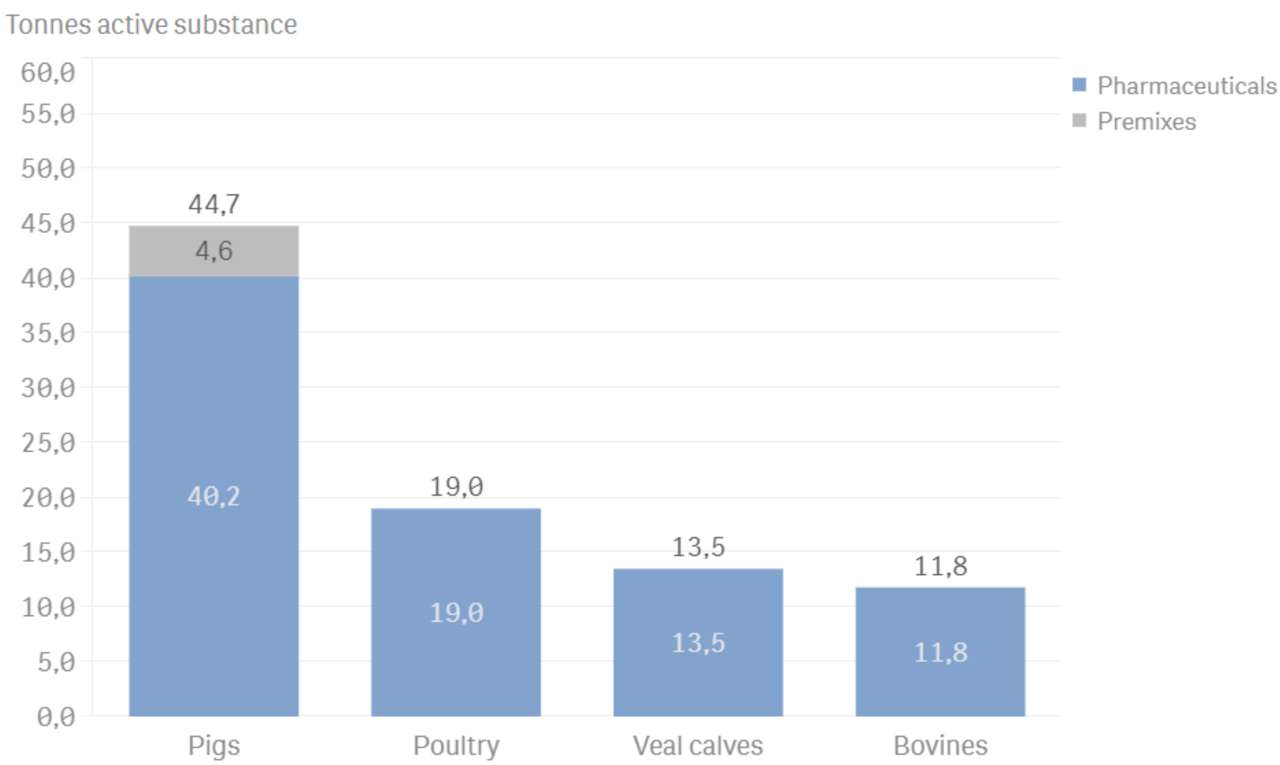


Figure 6. Tonnes active antibacterial substance of antibacterial pharmaceuticals and antibacterial premixes used in 2025 in pigs, poultry, veal calves, and dairy and beef cattle ('bovines').

Fattening pigs and weaned piglets remained the main contributors to the total tonnes used in pigs in 2025. Premixes were used slightly more in weaned piglets, while more pharmaceuticals were used in fattening pigs (***Figure 7***).

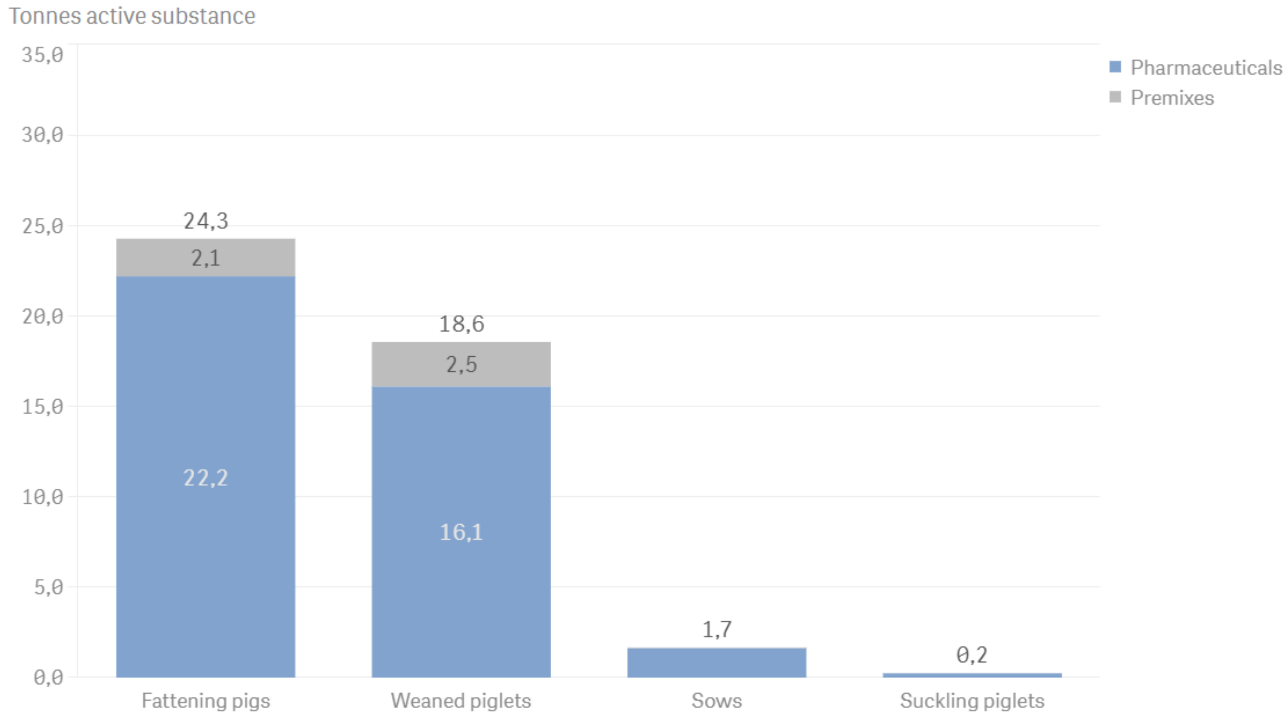


Figure 7. Tonnes active antibacterial substance of antibacterial pharmaceuticals and antibacterial premixes used in 2025 per pig category.

Broilers remained the predominant category within poultry (***Figure 8***), accounting for 86,7 % of tonnes antibacterials used, and ranking third among all animal categories with 18,5 % of the total used tonnes. Turkeys hold the second position in poultry; despite the very low number of turkey farms (approx. 2 % of professional poultry farms, data not shown), the large size of turkeys and their generally intensive production lead to a high antibacterial use.

In beef and dairy cattle, the majority of antibacterial tonnes used is concentrated in adult animals (***Figure 9***), which is expected given their significantly greater body mass compared to calves, even though the latter, as the youngest category, are more disease-prone and account for the highest number of antibacterial treatment days (see further). Beef cattle account for a higher number of tonnes used than dairy cattle, reflecting the greater number of farms with beef cattle in Belgium (data not shown).

Noteworthy, and not visible in ***Figure 9***, a small amount of antibacterial premix was used in several cattle categories: adult animals beef (3,2 kg) and dairy (3,7 kg), and the calves (9,9 kg) and young stock (1 kg) categories.

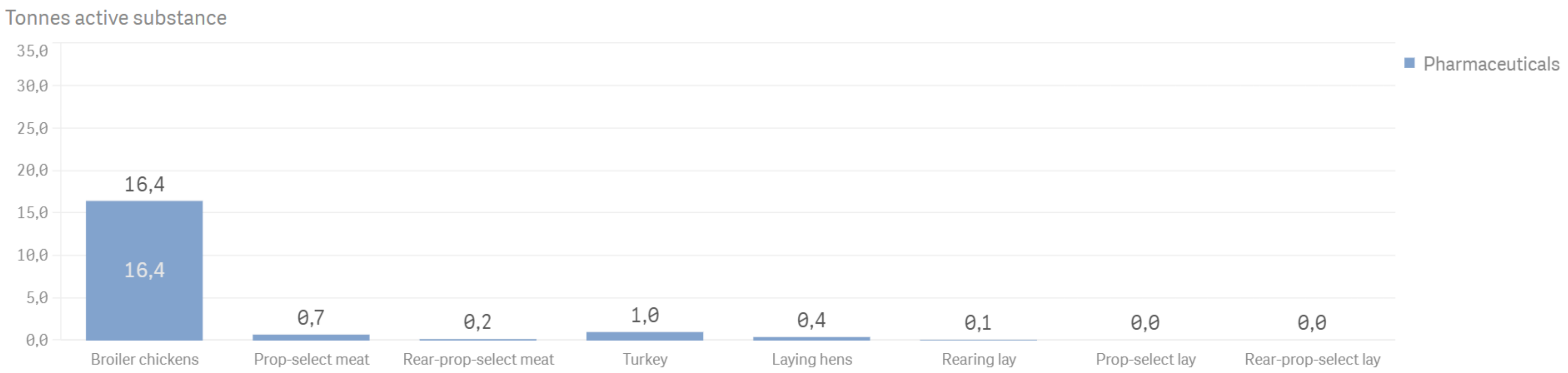


Figure 8. Tonnes active antibacterial substance of antibacterial pharmaceuticals used in 2025 per poultry category.

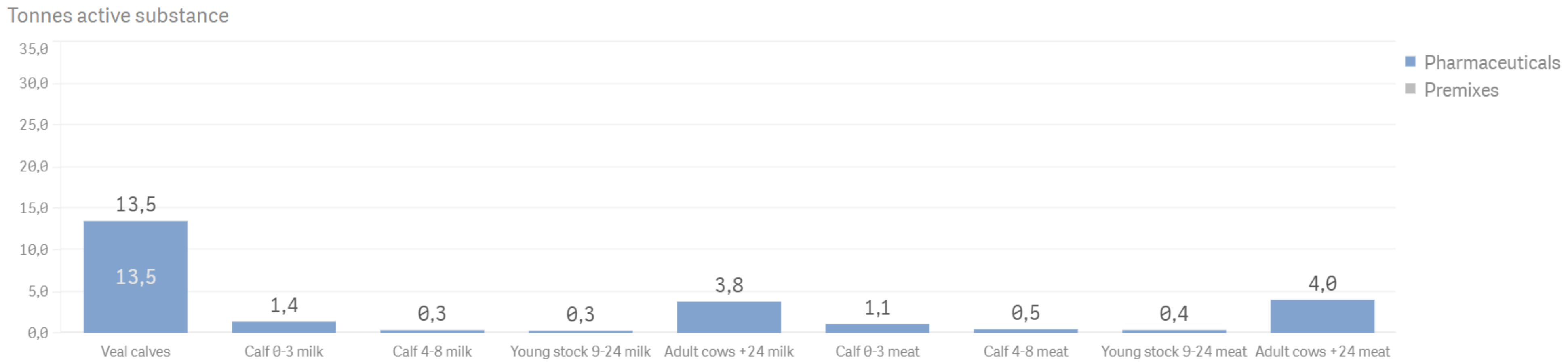


Figure 9. Tonnes active antibacterial substance of antibacterial pharmaceuticals and antibacterial premixes used in 2025 in veal calves and the dairy and beef cattle categories.

The BD_{100}-species

Table 5 and *Table 6* respectively show the number and the corresponding kg of animals at risk for antibacterial treatment, per species at national level between 2018 and 2025. These parameters represent the denominators for the BD_{100}-species calculation.

Table 5. Number of animals at risk from 2018 until 2025 in pigs, poultry, veal calves, and dairy and beef cattle.

	Animals at risk (x 10^3)							
	2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
PIGS	6 209	6 085	6 218	6 042	5 751	5 380	5 375	5 230
POULTRY[1]	43 624	44 902	49 016	48 919	48 754	50 005	55 160[1]	56 116[1]
VEAL CALVES	170	171	171	173	168	173	162	168
DAIRY/BEEF CATTLE							1 992	1 960

[1] The poultry number in this table includes, from 2018-2023, the numbers of broilers and laying hens only, while from 2024 onwards it includes all chicken and turkey categories.

Table 6. Kg animals at risk from 2018 until 2025 in pigs, poultry, veal calves, and dairy and beef cattle.

	Kg at risk (x 10^3)							
	2018	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**
PIGS	318 869	311 901	316 048	306 642	289 561	272 681	270 216	262 644
POULTRY[1]	54 921	55 860	60 838	60 892	60 474	61 620	67 264[1]	68 621[1]
VEAL CALVES	27 258	27 434	27 437	27 712	26 904	27 753	25 850	26 823
DAIRY/BEEF CATTLE							1 061 421	1 048 145

[1] The poultry kg in this table includes, from 2018-2023, the kg of broilers and laying hens only, while from 2024 onwards it includes all chicken and turkey categories.

Table 7 and *Table 8* show the antibacterial daily doses used per species at national level, for antibacterial VMPs for which the doses are expressed as mg/animal (VMPs for local or topical use) and for VMPs for which the doses are expressed as mg/kg (VMPs for systemic use), respectively.

The number of doses used declined for pigs but increased for poultry and veal calves.

Table 7. Doses used of VMPs administered locally or topically in pigs, poultry, veal calves, and dairy and beef cattle.

	n $DDDA_{bel}$ × LA_{bel} (local/topical administration)							
	2018	2019	2020	2021	2022	2023	2024	2025
PIGS	601 202	518 923	569 043	557 727	484 494	435 334	401 059	324 631
POULTRY[1]	0	0	0	0	0	0	94[1]	0[1]
VEAL CALVES	2 055	3 397	3 402	4 468	3 887	2 402	3 073	5 185
DAIRY/BEEF CATTLE							2 500 139	2 088 951

[1] The quantity for poultry in this table includes, from 2018-2023, the doses of broilers and laying hens only, while from 2024 onwards it includes all chicken and turkey categories.

Table 8. Doses used of VMPs administered orally or parenterally in pigs, poultry, veal calves, and dairy and beef cattle.

	n $DDDA_{bel}$ × LA_{bel} ($x10^3$) (oral, parenteral administration)							
	2018	2019	2020	2021	2022	2023	2024	2025
PIGS	7 995 199	7 403 220	7 114 627	6 124 128	4 168 572	3 769 400	3 525 374	2 879 149
POULTRY[1]	1 136 466	1 085 958	1 135 231	673 677	745 411	709 793	627 183[1]	640 234[1]
VEAL CALVES	1 354 466	1 077 382	1 059 701	863 038	763 663	762 623	739 822	748 281
DAIRY/BEEF CATTLE							1 364 337	1 162 076

[1] The quantity for poultry in this table includes, from 2018-2023, the doses of broilers and laying hens only, while from 2024 onwards it includes all chicken and turkey categories.

The resulting BD_{100}-species (***Figure 10***) expresses the sector-level treatment days out of 100 days based on the total, national number of standard daily doses of antibacterials used per species and the total, national mass of animals at risk per species.

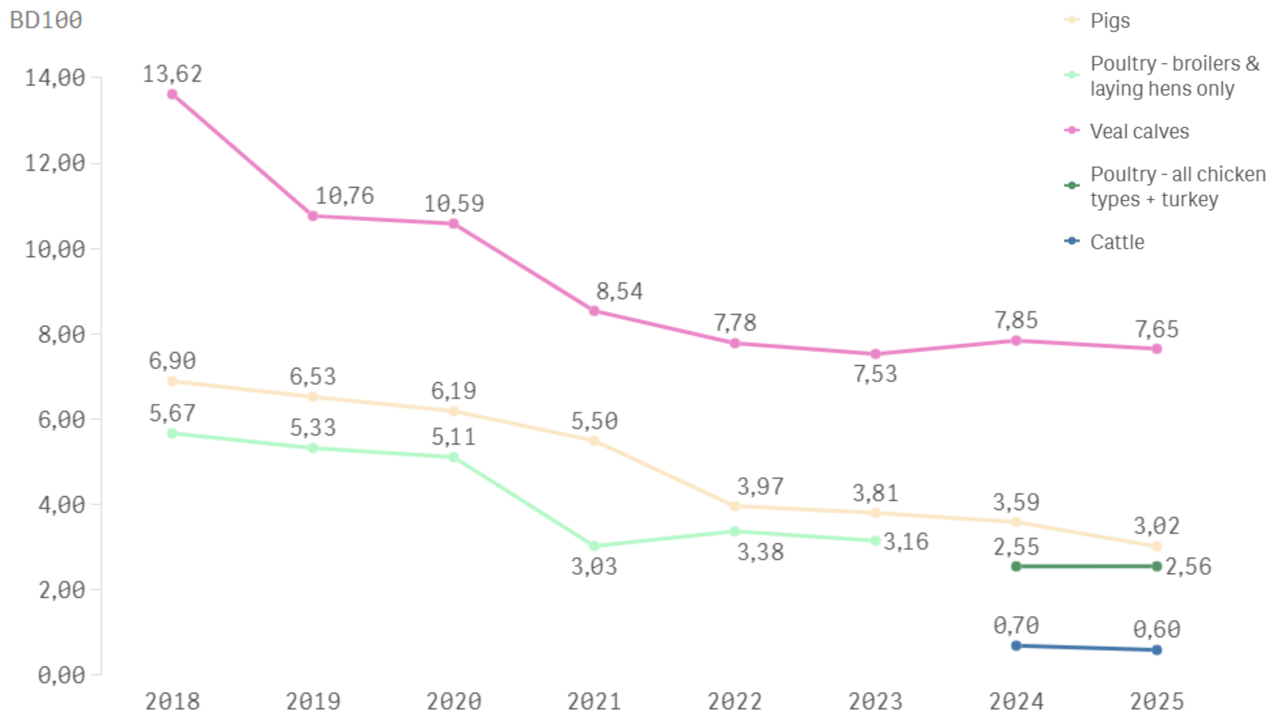


Figure 10. Antibacterial use (BD_{100}-species) from 2018 to 2025 in pigs, poultry and veal calves, and in dairy and beef cattle in 2024 and 2025. The disruption for poultry is to illustrate the difference in both numerator and denominator between the years, including only broilers and laying hens until 2023, and from 2024 onwards including the other chicken categories and turkeys.

Between 2024 and 2025 the BD_{100}-species decreased for all species except poultry. The biggest reduction was achieved in pigs (-15,9 %), amounting to a total reduction since 2018 of 56,2 %. In veal calves, a reduction of 2,5 % was achieved in 2025 compared to 2024, with a total reduction of 43,8 % since 2018. Poultry slightly increased in 2025 compared to 2024 (0,4 %) but still achieved an overall reduction of 54,9 % since 2018. In their second full year of data collection, cattle showed a 14,3% reduction in the BD_{100}-species.

Farm-level antibacterial use – results over all species

At farm level, antibacterial use, expressed as the % of time an animal is treated (the average BD_{100}), is calculated per animal category present on the farm. For each animal category, reference populations for benchmarking are defined. All results presented below are based on these benchmark reference populations. *Table 9* outlines the number of farms per animal category that met the eligibility criteria for inclusion in the 2025 reference populations for benchmarking, following farm-level quality controls.

a) Reference populations for benchmarking in 2025

Table 9. Total number of farms and number of zero-registration farms in the 2025 reference populations for benchmarking for each SANITEL-MED animal category.

	PIGS				BOVINES								
	Suckling piglets	Weaned piglets	Fattening pigs	Breeding pigs	**VEAL CALVES**[2]	Milk calf 0-3 m	Milk calf 4-8 m	Milk young adults 9-24 m	Milk adults +24 m	Beef calf 0-3 m	Beef calf 4-8 m	Beef young adults 9-24 m	Beef adults +24 m
n farms	1 280	1 334	3 377	1 279	216	3 462	4 146	4 567	4 433	2 548	4 247	5 422	5 110
n (%) zero-registration farms[1]	193 (15)	109 (8)	610 (18)	193 (15)	0	0	0	0	0	0	0	0	0

	POULTRY							
	Broilers	Chickens meat propagation-selection	Chickens meat rearing-propagation-selection	Laying hens	Chickens lay rearing[3]	Chickens lay propagation-selection	Chickens lay rearing-propagation-selection[3]	Turkeys
n farms	761	107	47	210	48	7	2	15
n (%) zero-registration farms[1]	108 (14)	51 (48)	11 (23)	138 (66)	19 (40)	4 (57)	2 (100)	0

[1] For pigs, zero-registration is determined at the farm level, whereas for poultry and veal calves, zero registration is determined at the animal category level. In dairy and beef cattle, having zero registrations, at the production level (milk or beef), is a criterion for exclusion from the reference population for benchmarking.

[2] For veal calves, benchmarking reference populations at the farm level are established for periods of two years, meaning the '2025' period encompasses data from 2024 and 2025.

[3] Due to the limited number of rearing-propagation-selection lay farms, for the analyses a combined benchmark reference group is created together with the rearing lay category.

For veal calves, the benchmarking reference populations are defined for 2-year periods, in this case 2024 and 2025. In cattle, two main production types, ‘meat’ and ‘milk’, are distinguished in SANITEL-MED. Cattle farms are considered eligible for inclusion in either of these production-type benchmark groups based on the presence on the farm of animals belonging to the race types ‘meat’ and/or ‘milk’. It is important to note that many farms house both production types and that cattle can be kept for dual purposes. See Annex I – Materials and methods for more information on the procedure for distributing animals of race type ‘mixed’ into either of the production types.

b) Distribution of farm-level antibacterial use per animal category in 2025

Figures 11, ***12*** and ***13*** depict the distribution of the farm-level BD_{100} in the 2025 benchmarking reference populations (excluding the zero-registration farms) for each SANITEL-MED animal category for pigs, poultry and bovines respectively. The results are presented as box-plots, with the median value indicated.

Overall, use remained highest in weaned piglets (median BD_{100} of 8,67) and veal calves (median BD_{100} of 7,08).

In poultry, turkeys and broilers had the highest use, with turkeys showing the third highest median use overall.

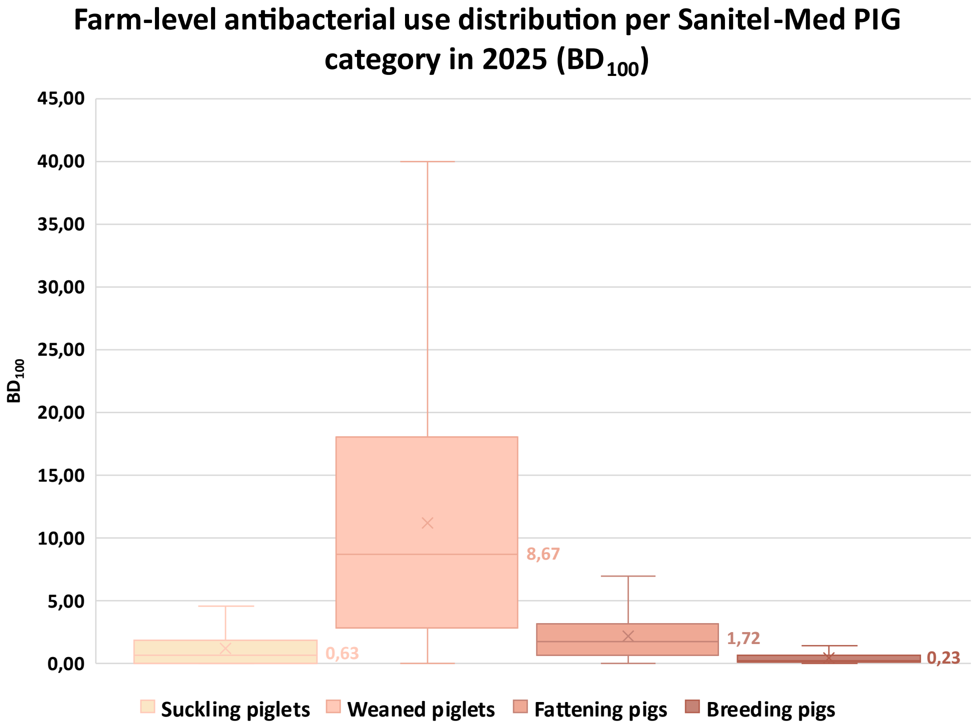


Figure 11. Box-plots representing the BD_{100}-distribution in the 2025 benchmarking reference populations* of the SANITEL-MED pig categories. Outliers are not shown. The median values are provided next to the lines in the boxes. ** Excluding zero-registration farms.*

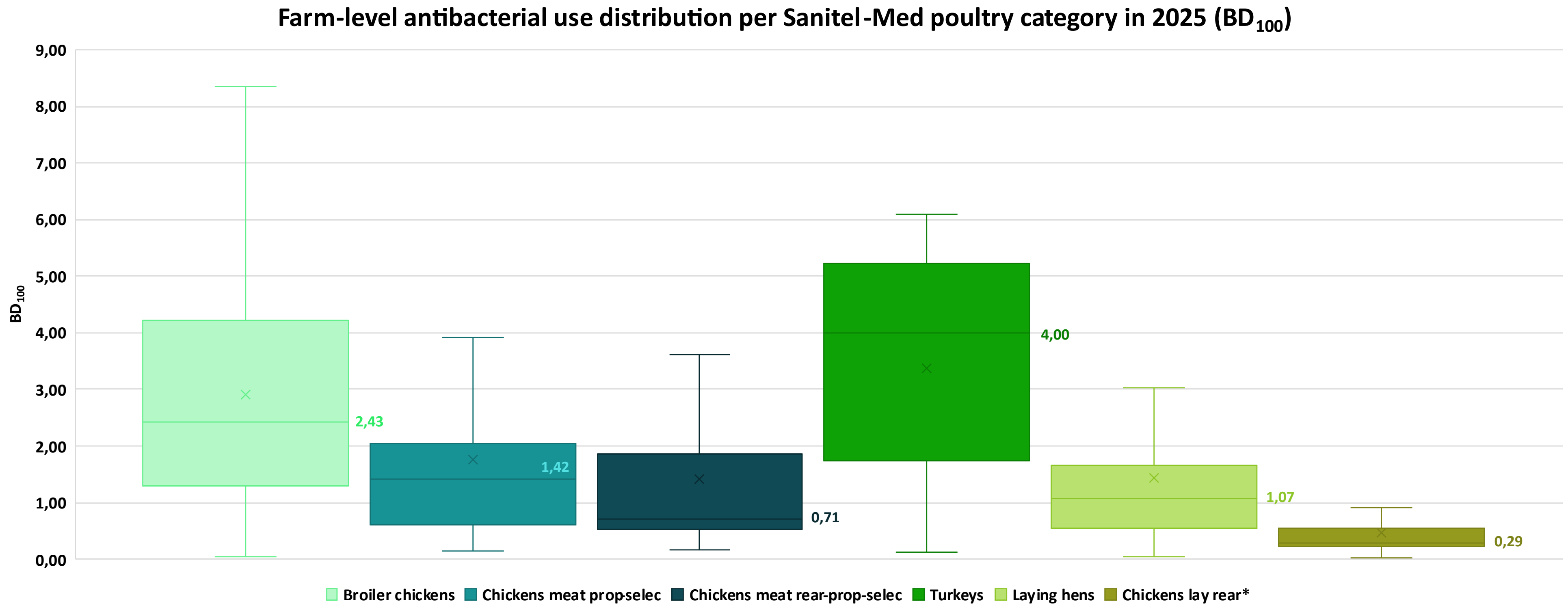


Figure 12. Box-plots representing the BD_{100}-distribution in the 2025 benchmarking reference populations of the SANITEL-MED poultry categories (except for chicken lay propagation-selection, due to the very low number of farms). Outliers are not shown. The median values are provided next to the lines in the boxes.**

** Combination benchmark reference group of 'chickens lay rearing' and 'chickens lay rearing-propagation-selection'.*

*** Excluding zero- registration farms.*

The youngest calf categories (0-3 months) had the highest use in dairy and beef cattle, additionally demonstrating a remarkably large variation, the largest of all monitored animal categories (***Figure 13***).

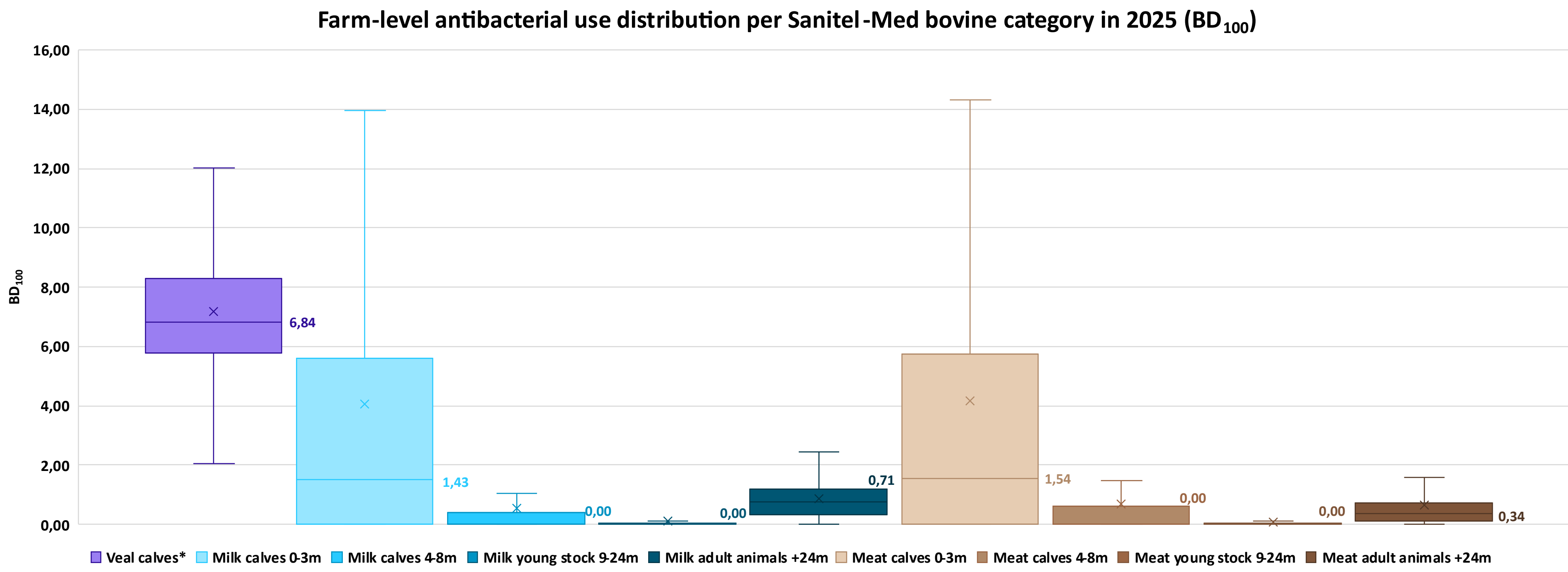


Figure 13. Box-plots representing the BD_{100}-distribution in the 2025 benchmarking reference populations of the SANITEL-MED bovine categories. Outliers are not shown. The median values are provided next to the lines in the boxes. In dairy and beef cattle, zero-registration farms are as a rule excluded from the benchmarking reference groups.

** The veal calf results are based on a two-year benchmarking period (2024/25).*

The right-skewed distribution with ‘tails’ of high users is visible in almost all categories. This illustrates that even though in each category there is a ‘concentration’ of farms in the lower use zones, considerable variation remains, with a smaller number of farms ‘scattered’ towards the highest use zones. Remarkably, in turkeys there is a left-skewed distribution.

c) Evolution of median farm-level antibacterial use

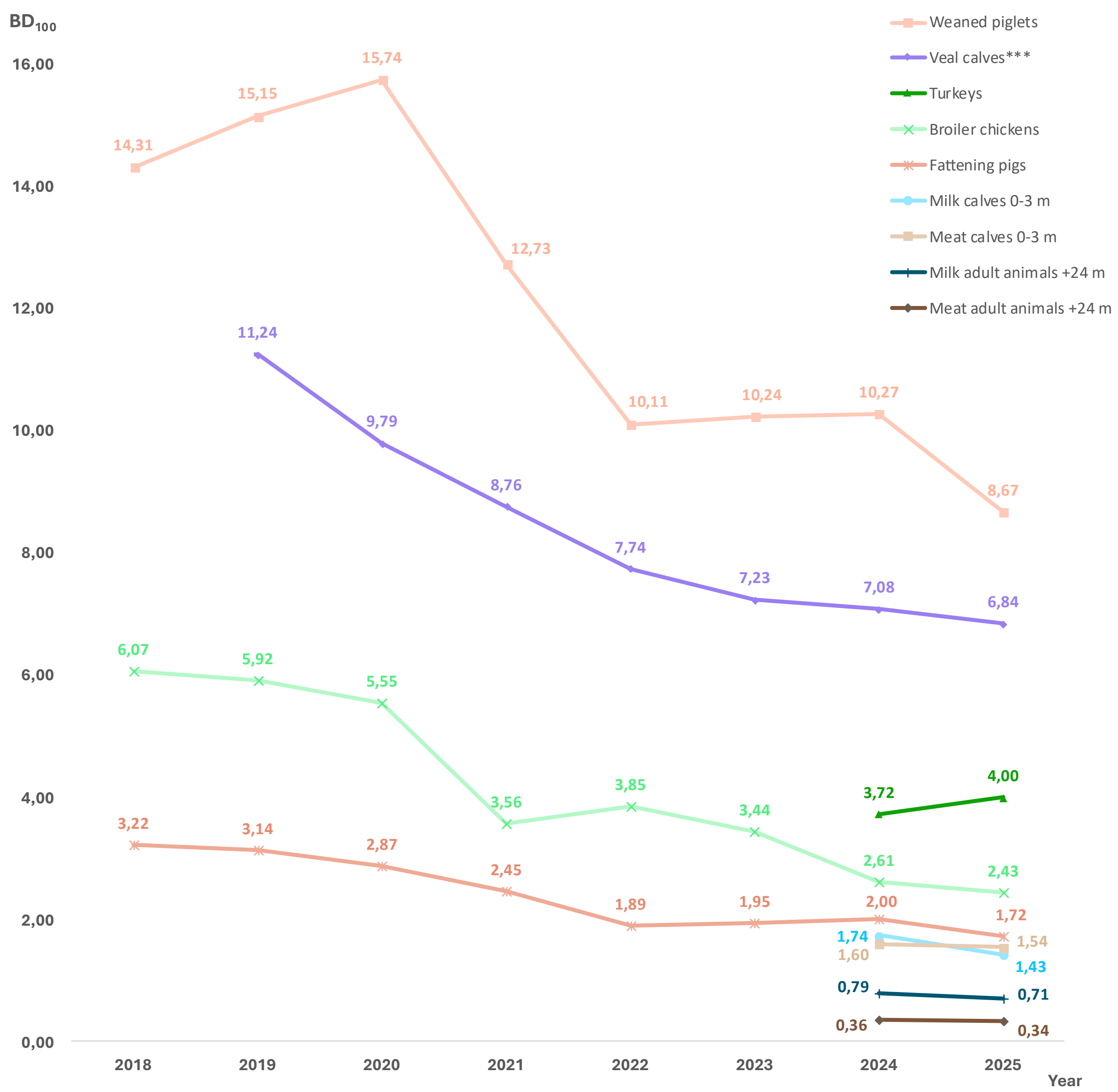


Figure 14. Evolution of the median of the BD_{100}-distribution in the benchmarking reference populations, excluding zero-registration farms, from 2018* till 2025 for the main SANITEL-MED animal categories.**

** For the categories for which data is being collected since 2018.*

*** Selected based on the highest median BD_{100}-values, on the number of farms involved and on the mass of antibacterials used. For the remaining categories, see Annex II – Additional figures and tables.*

**** The veal calf results are based on a two-year benchmarking period, with 2025 reflecting the 2024/25 result, 2024 the 2023/24 result and so on.*

All categories except turkeys show a decrease in their median BD_{100} value in 2025 compared to 2024 (*Figure 14*). The largest decrease was in milk calves 0-3 months (-17,7 %), weaned piglets (-15,6 %) and fattening pigs (-14,2 %).

Compared to 2018 the median BD_{100} decreased with 39,2 % for veal calves, 39,4 % for weaned piglets, 46,7 % for fattening pigs and 59,9 % for broiler chickens.

d) Percentage of farms and tonnes used per benchmark colour score in 2025

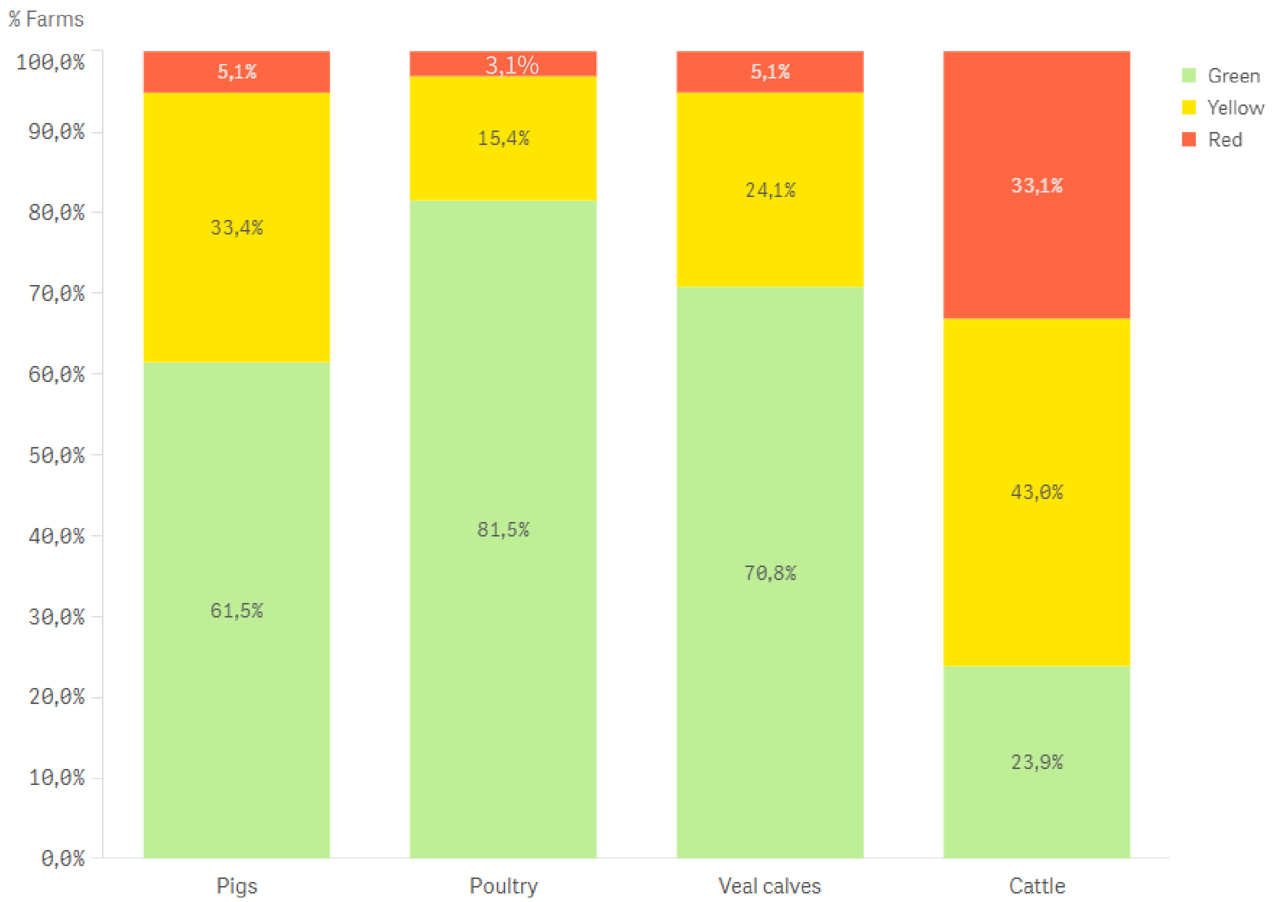


Figure 15. Percentage* of pig, poultry, veal calf and cattle farms per benchmark colour score in 2025.
** Including zero-registration farms for pigs, poultry and veal calves.*

A farm gets a benchmark colour score for each animal species on the farm, and that score is determined by the animal category on the farm with the worst benchmark colour score. In 2025, the percentage of farms with a red benchmark colour score, i.e. farms with at least one category with a red benchmark colour score, was the lowest in poultry and the highest in cattle (*Figure 15*). The latter is expected: in cattle a benchmarking system with dynamic thresholds is applied, resulting in 50 % green, 40 % yellow and 10 % red farms in each cattle category; combining cattle categories on a farm inevitably results in relatively higher numbers of cattle farms with a red benchmark colour score compared to pigs, broiler chickens, laying hens and veal calves, where a benchmarking system with fixed thresholds is applied (fixed for a defined period of time). Indeed, fixed thresholds allow farms to adapt their use to the thresholds, resulting, in practice, in lower percentages of farms with a red benchmark colour score, even when combining multiple categories on a farm. In the other chicken categories and turkeys, included in the poultry results, also dynamic benchmarking is applied; however, the number of farms in these categories is low compared to the laying hens and, especially, broilers, resulting in a predominance of the broiler result in the overall poultry result.

In pigs, the majority of the tonnes antibacterials used in 2025 was still concentrated in farms with a yellow benchmark colour score, but there was a big reduction in the tonnes used in red farms (***Figure 16***). Also in cattle, the farms with a yellow benchmark colour score had the largest share of the tonnes used in 2025, yet the difference with the share of farms with a red benchmark colour score was small – consistent with the important percentage of cattle farms with a red benchmark colour score. In poultry and veal calves, farms with a green benchmark score had the largest share of the tonnes antibacterials used, with that share showing a steady increase.

Figure 16. Total tonnes of antibacterials used in the animal categories with the respective benchmark colour scores in the last two or three years.

e) Antibacterial use by the contract-veterinarian

In Belgium, the contract-veterinarian is a veterinarian responsible for the epidemiological surveillance on a farm. The 'contract' can be concluded between a farm and an individual veterinarian ('natural person') or between a farm and a 'legal person' veterinarian, the latter typically representing a veterinary practice. In case a farmer additionally concludes a contract with a veterinarian to allow farm-guidance, it is required that this is with the same contract-veterinarian. It is not mandatory for a farmer to have all the antibacterial use on the farm prescribed, supplied or administered by the contract-veterinarian. However, investigating the relationship between contract-veterinarian and antibacterial use on a farm provides an insight into the degree to which 1-on-1 relationships between farmers and contract-veterinarians, with respect to antibacterial use, are maintained in the different sectors.

The results for 2025 (***Figure 17***) were largely in line with those for 2024. Pigs and veal calves remained the sectors where the highest share of farms had 100 % of their antibacterial use under the responsibility of the contract-veterinarian. However, the decrease in that share for veal calves was remarkable, having been 89 % in 2024; the 20 % difference was largely situated in a shift to the 75-100 % use-interval (increase of 15 % in 2025 compared to 2024). The low proportion of farms with all their antibacterial use under the responsibility of the contract-veterinarian in cattle also stands out again in 2025.

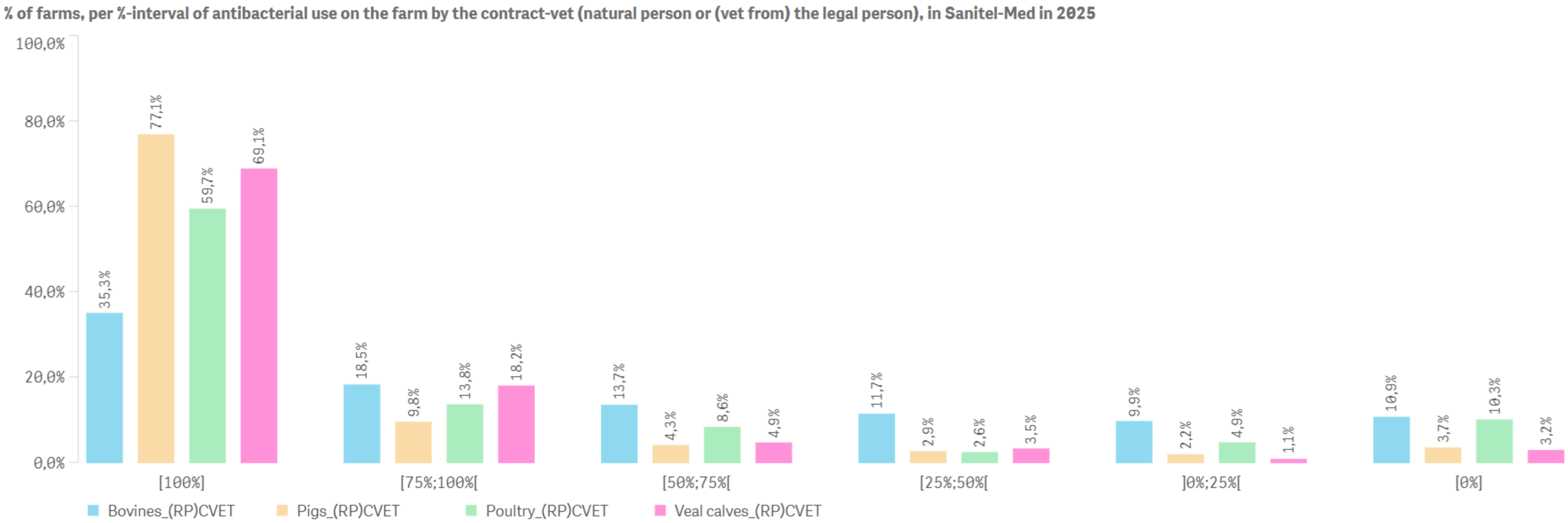


Figure 17. The percentage of farms (Y-axis) where the antibacterial use, per 25 %-use-intervals (X-axis), was done by the contract veterinarian (CVET) or by a vet belonging to the contract-legal-person (RP-CVET) on pig, poultry, veal calf, and dairy and beef cattle farms in 2025.

The antibacterial use in pig farms

a) Suckling piglets

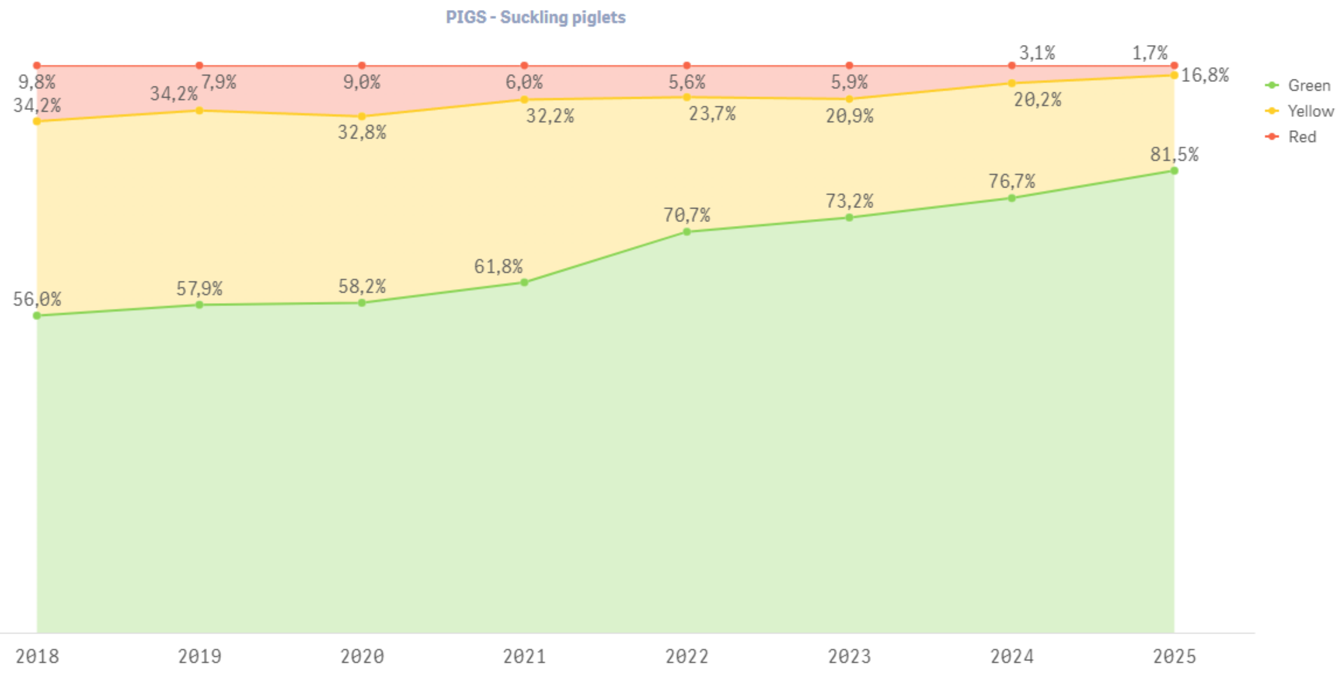
The antibacterial use in suckling piglets further decreased in 2025 (*Table 10*). For the second year in a row, the P25 equalled zero, and the other parameters decreased 10-26 % compared to 2024 (excl. the zero-registration farms). Overall, the median BD_{100} dropped by two thirds, and in the higher use zones reductions of 70 % and more were achieved, with the total sum of treatment days having reduced by three quarters. Noteworthy though is the steadily decreasing number of farms in the benchmark reference groups, a trend visible in all pig categories.

Table 10. Parameters describing the distribution of the farm-level antibacterial use in the reference populations for benchmarking of suckling piglets from 2018 to 2025 and the % difference (diff) over the years.

Parameters BD_{100}	2018	2019	2020	2021	2022	2023	2024	2025	diff 25-24	diff 25-18
P25	0,12	0,12	0,21	0,13	0,02	0,04	0,00	0,00	-	-100,00%
P50	1,84	1,70	1,63	1,65	0,93	0,86	0,85	0,63	-26,33%	-65,91%
P75	5,76	5,19	4,79	4,70	2,96	2,54	2,16	1,82	-15,70%	-68,45%
P90	11,58	9,94	9,95	8,57	5,30	4,44	3,67	3,31	-9,82%	-71,41%
Mean	4,42	3,83	3,90	3,48	2,02	1,82	1,42	1,22	-14,43%	-72,51%
Sum	5 401	4 609	4 792	4 831	2 572	2 189	1 628	1 321	-18,84%	-75,54%
Total n farms	1 354	1 325	1 372	1 648	1 541	1 424	1 345	1 280	-4,83%	-5,47%
% farms with zero registrations[1]	10%	9%	10%	16%	18%	15%	15%	15%	ND	ND

[1] *Zero-registration farms were excluded from the data for determining the parameter values.*

Consistent with these results, the share of farms (incl. zero-registration farms) with suckling piglets in the green benchmark colour zone continued to increase, reaching 81,5 % in 2025, representing a 25 % increase since 2018 (*Figure 18*). Accordingly, the share of farms (including zero-registration farms) in the yellow and red benchmark colour zones further declined, to a mere 1,7 % of farms with a red benchmark colour score. This underscores the exceptionality of the used quantities on the small number of red farms, and advocates for ongoing efforts to pull them over the line.



Date of application	Attention value	Action value
01/01/2021	2	10
01/01/2023	2	6
01/01/2024	2	5

Figure 18. The percentages of farms, including zero-registration farms, in the reference population for benchmarking of suckling piglets in the three benchmark colour zones (left), as defined by the BD_{100}-thresholds of the reduction path for suckling piglets (right), with the currently applied thresholds indicated within the dotted line.

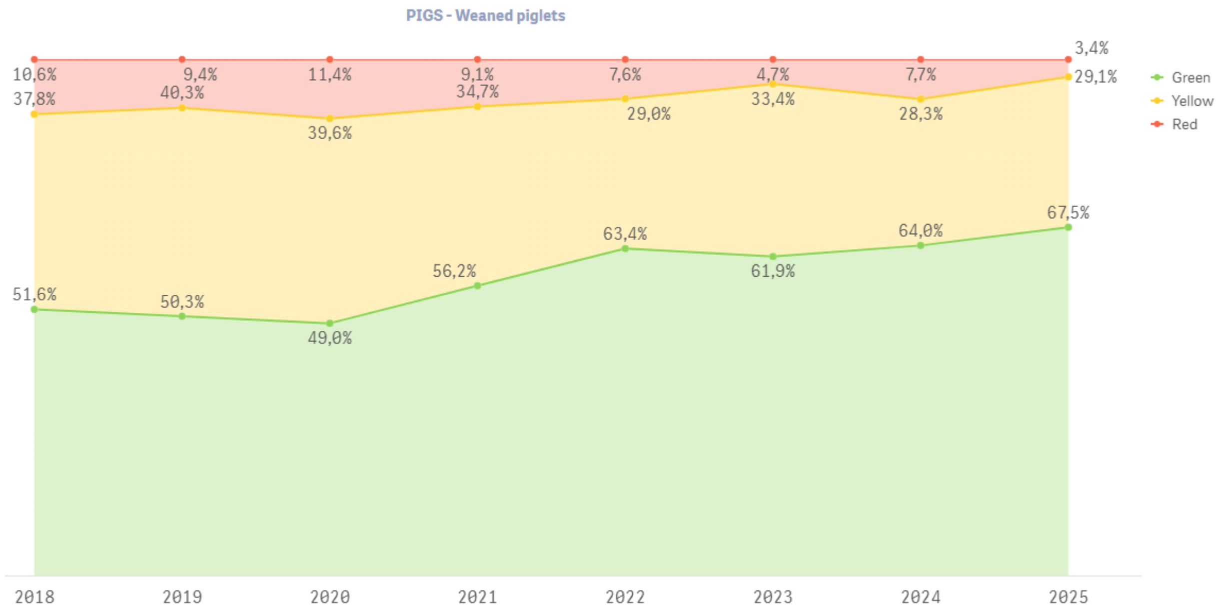
b) Weaned piglets

The antibacterial use in weaned piglets decreased in 2025 quite uniformly with approx. 15 % throughout their benchmark reference population of farms (excl. the zero-registration farms) (*Table 11*). It is the first reduction in the lower use zones in three years. Since 2018, the median BD_{100}-value decreased almost 40 % and the 90^{th} BD_{100}-percentile more than halved. This leads in 2025 to an increase of the percentage of farms (incl. zero-registration farms) with weaned piglets in the green benchmark colour zone and a decrease of the percentage of farms (incl. zero-registration farms) with weaned piglets in the red benchmark colour zone (*Figure 19*). Variation in antibacterial use between the farms with weaned piglets remains considerable, with the 90^{th} percentile almost a factor 10 higher than the 20^{th} percentile. The weaned piglets also remain the main use category overall, having a total number of treatment days double that of the fattening pigs, rivalled only by the treatment days in the 0-3 months old dairy calves (*Table xx*).

Table 11. Parameters describing the distribution of the farm-level antibacterial use in the reference populations for benchmarking of weaned piglets from 2018 to 2025 and the % difference (diff) over the years.

Parameters BD_{100}	2018	2019	2020	2021	2022	2023	2024	2025	diff 25-24	diff 25-18
P25	3,58	4,40	3,73	3,30	2,73	3,08	3,25	2,85	-12,23%	-20,37%
P50	14,31	15,15	15,74	12,73	10,11	10,24	10,27	8,67	-15,59%	-39,41%
P75	31,56	30,55	31,54	28,73	22,04	22,45	20,77	18,01	-13,29%	-42,94%
P90	53,23	50,56	54,28	49,71	37,81	34,31	29,17	25,18	-13,69%	-52,71%
Mean	22,28	21,91	22,50	20,58	15,65	14,61	13,11	11,15	-14,97%	-49,96%
Sum	28 960	28 439	29 964	30 481	22 065	19 566	16 755	13 655	-18,50%	-52,85%
Total n farms	1 369	1 367	1 401	1 615	1 577	1 458	1 395	1 334	-4,37%	-2,56%
% farms with zero registrations[1]	5%	5%	5%	8%	11%	8%	8%	8%	ND	ND

[1] *Zero-registration farms were excluded from the data for determining the parameter values.*



Date of application	Attention value	Action value
01/01/2021	14	50
01/01/2023	14	40
31/12/2024	14	30

Figure 19. The percentages of farms, including zero-registration farms, in the reference population for benchmarking of weaned piglets in the three benchmark colour zones (left), as defined by the BD_{100}-thresholds of the reduction path for weaned piglets (right), with the currently applied thresholds indicated within the dotted line.

c) Fattening pigs

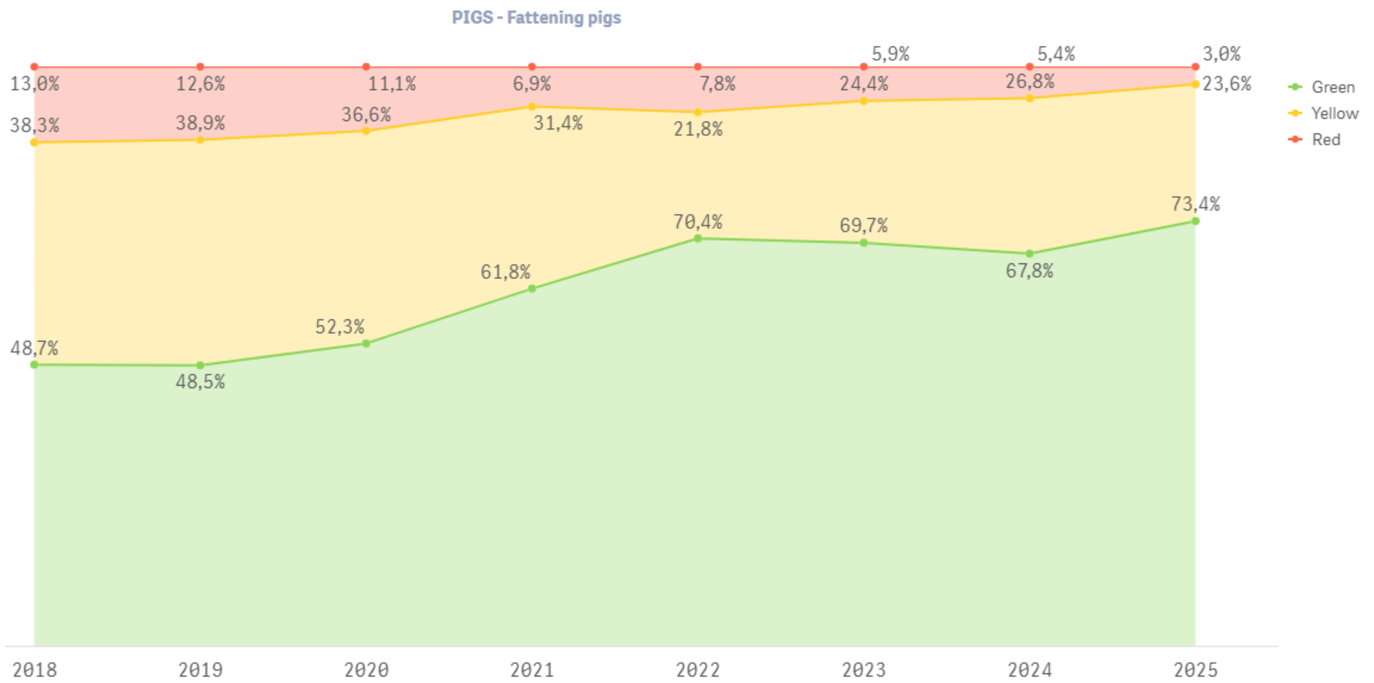
In contrast to last year, in 2025 the fattening pigs followed suit, attaining similar reduction percentages throughout their benchmark reference population of farms (excl. the zero-registration farms) as the other pig categories (*Table 12*). Accordingly, the total reduction compared to 2018 reached new heights, breaching the 50 % boundary in the higher use zones and approaching it in the lower use zones.

Table 12. Parameters describing the distribution of the farm-level antibacterial use in the reference populations for benchmarking of fattening pigs from 2018 to 2025 and the % difference (diff) over the years.

Parameters BD_{100}	2018	2019	2020	2021	2022	2023	2024	2025	diff 25-24	diff 25-18
P25	1,17	1,27	1,13	0,93	0,64	0,74	0,80	0,65	**-18,39%**	**-44,16%**
P50	3,22	3,14	2,87	2,45	1,89	1,95	2,00	1,72	**-14,21%**	**-46,71%**
P75	6,48	6,31	5,77	4,96	3,79	3,67	3,70	3,20	**-13,60%**	**-50,64%**
P90	10,57	10,38	9,81	8,34	5,99	5,46	5,46	4,83	**-11,63%**	**-54,33%**
Mean	4,69	4,67	4,23	3,61	2,63	2,53	2,57	2,18	**-15,09%**	**-53,43%**
Sum	15 446	15 121	13 997	12 568	8 507	7 719	7 515	6 040	**-19,62%**	**-60,89%**
Total n farms	3 597	3 515	3 616	4 288	4 118	3 751	3 544	3 377	ND	ND
% farms with zero registrations[1]	8%	8%	9%	19%	22%	19%	18%	18%	ND	ND

[1] *Zero-registration farms were excluded from the data for determining the parameter values.*

These results are evidently reflected in the percentage of farms (incl. zero-registration farms) with fattening pigs in the different benchmark colour zones in 2025, with now plainly more than 70 % farms with a green benchmark colour score and the share of farms with a red benchmark colour score decreasing to 3 % (*Figure 20*).



Date of application	Attention value	Action value
01/01/2021	2,7	9
01/01/2023	2,7	6
01/01/2024	2,7	6

Figure 20. The percentages of farms, including zero-registration farms, in the reference population for benchmarking of fattening pigs in the three benchmark colour zones (left), as defined by the BD_{100}-thresholds of the reduction path for fattening pigs (right), with the currently applied thresholds indicated within the dotted line.

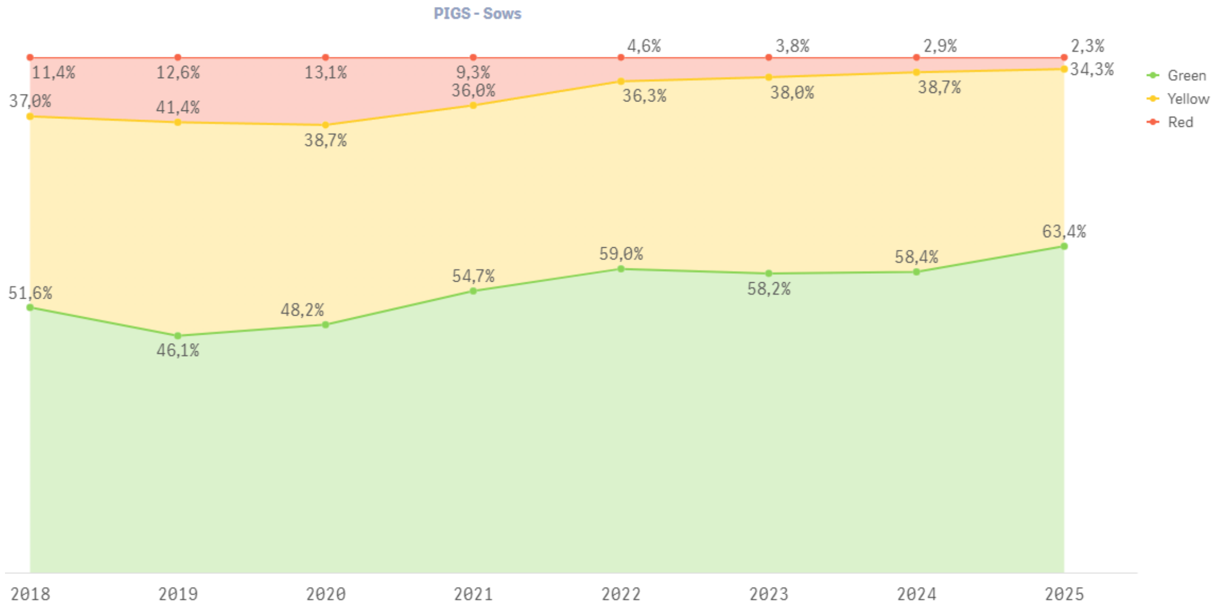
d) Breeding pigs

Also in breeding pigs, the antibacterial use further decreased in 2025, with 10-15 % across their benchmark reference population of farms (excl. the zero-registration farms) (*Table 13*). The overall reduction in breeding pigs since 2018 remained lower than in the other pig categories, still achieving approx. 40 % in the highest use zone. Accordingly, the percentage of farms (incl. zero-registration farms) with breeding pigs in the green benchmark colour zone remained markedly lower and that in the yellow benchmark colour zone markedly higher than the other pig categories (*Figure 21*). However, the share of farms with a red benchmark colour score was the second lowest of all pig categories.

Table 13. Parameters describing the distribution of the farm-level antibacterial use in the reference populations for benchmarking of breeding pigs from 2018 to 2025 and the % difference (diff) over the years.

Parameters BD_{100}	2018	2019	2020	2021	2022	2023	2024	2025	diff 25-24	diff 25-18
P25	0,05	0,09	0,09	0,07	0,06	0,08	0,07	0,06	**-24,14%**	**5,77%**
P50	0,32	0,40	0,40	0,33	0,28	0,28	0,27	0,23	**-14,34%**	**-29,72%**
P75	0,97	1,02	1,05	0,90	0,74	0,72	0,67	0,60	**-10,64%**	**-37,96%**
P90	1,95	2,04	2,12	1,81	1,28	1,30	1,25	1,12	**-9,84%**	**-42,44%**
Mean	0,87	0,85	0,84	0,74	0,52	0,50	0,47	0,43	**-9,76%**	**-50,68%**
Sum	1 057	1 023	1 034	1 058	659	608	545	464	**-14,86%**	**-56,13%**
Total n farms	1 346	1 320	1 367	1 688	1 550	1 429	1 350	1 279	ND	ND
% farms with zero registrations[1]	9%	9%	10%	15%	17%	15%	15%	15%	ND	ND

[1] *Zero-registration farms were excluded from the data for determining the parameter values.*



Date of application	Attention value	Action value
01/01/2021	0,28	1,65
01/01/2023	0,28	1,65
01/01/2024	0,28	1,65

Figure 21. The percentages of farms, including zero-registration farms, in the reference population for benchmarking of breeding pigs in the three benchmark colour zones (left), as defined by the BD_{100}-thresholds of the reduction path for breeding pigs (right), with the currently applied thresholds indicated within the dotted line.

In conclusion for the pig sector, 2025 was a remarkable year of continued reduction of antibacterial use in all categories. The pig sector has, overall, shown a more or less continued decrease in the antibacterial use ever since the start of the data collection and benchmarking analysis, at first in the scope of the private initiative AB Register, driven by the BePork quality scheme, and then with an extra drive following the take-off of the official database SANITEL-MED and a few years later the sector-specific reduction paths. However, the last few years, signs of stagnation appeared, suggesting new incentives might be required to set new steps towards a sustained lowered antibacterial use. Yet, despite the hampered implementation of the recently agreed lower BD_{100}-thresholds, still a major step forward has been set in 2025. Considering the impeding termination of the production of feed medicated with antibacterials, and the possibility of taking advantage of the last years of their availability, the results might be considered even more surprising and therefore all the more impressive. There might be an effect of anticipating the changes set to come in the next years, but regardless, the sector proves determined in taking its responsibility and should find encouragement for continuing their good work.

The antibacterial use in poultry farms

a) Broilers

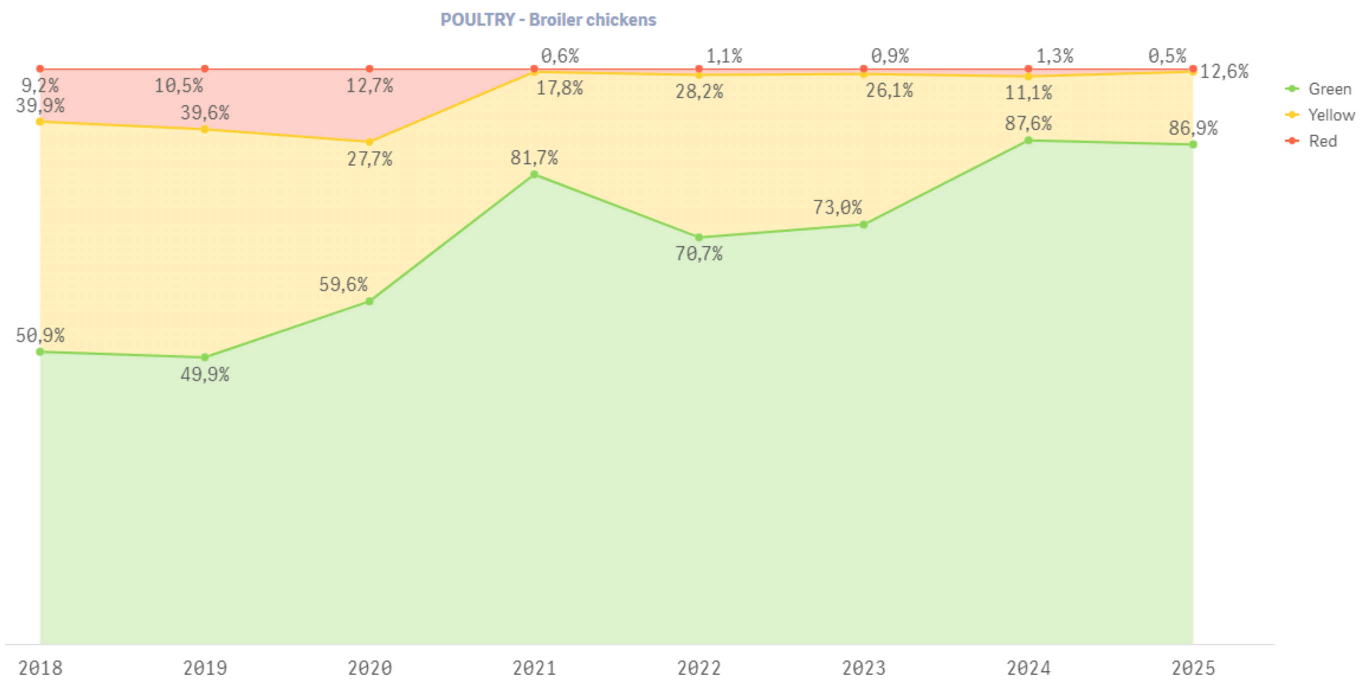
The broiler sector achieved a drastic decrease in antibacterial use in 2021 compared to 2020, and after two years of steady state, another moderate decrease in 2024. In 2025, the antibacterial use was similar to that of 2024 (*Table 14*). There was a modest decrease of the P25 and P50 but a small increase in the P75 and P90. This means that, overall, still a substantial reduction of around 60 % was achieved since 2018. The number of farms in the benchmark group increased but the proportion of zero-registration farms decreased.

Table 14. Parameters describing the distribution of the farm-level antibacterial use in the reference populations for benchmarking of broiler chickens from 2018 to 2025 and the % difference (diff) over the years.

Parameters BD_{100}	2018	2019	2020	2021	2022	2023	2024	2025	diff 25-24	diff 25-18
P25	2,94	2,80	2,42	1,77	2,19	1,59	1,32	1,30	**-1,66%**	**-55,76%**
P50	6,07	5,92	5,55	3,56	3,85	3,44	2,61	2,43	**-6,98%**	**-59,94%**
P75	11,24	10,71	10,84	5,56	6,08	5,70	4,10	4,21	**2,86%**	**-62,51%**
P90	16,66	16,14	16,01	7,63	7,87	7,68	5,64	5,65	**0,26%**	**-66,09%**
Mean	7,88	7,67	7,36	3,96	4,25	3,94	3,03	2,92	**-3,58%**	**-63,00%**
Sum	4 999	4 748	4 724	2 445	2 634	2 486	1 906	1 905	**-0,06%**	**-61,89%**
Total n farms	729	723	741	720	738	758	748	761	ND	ND
% farms with zero registrations[1]	13%	14%	13%	14%	16%	17%	16%	14%	ND	ND

[1] *Zero-registration farms were not included in the data determining the parameter values.*

The percentage of farms with a yellow benchmark colour score increased, reducing the percentage of farms with a green benchmark colour score but also that of farms with a red benchmark colour score, the latter reaching a record low (*Figure 22*).



Date of application	Attention value	Action value
01/01/2021	6	14
01/01/2023	5	12
31/12/2024	5	10

Figure 22. The percentages of farms, including zero-registration farms, in the reference population for benchmarking of broiler chickens in the three benchmark colour zones (left), as defined by the BD_{100}-thresholds of the reduction path for broiler chickens (right), with the currently applied thresholds indicated within the dotted line.

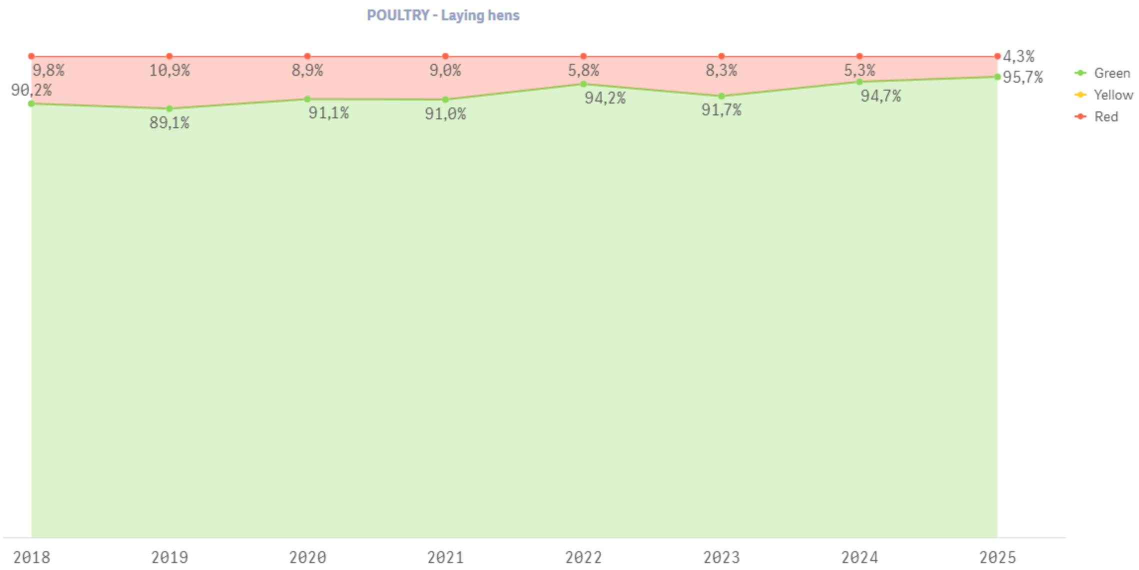
b) Laying hens

The antibacterial use in laying hens is subject to large variations, due to the low number of laying hens' farms using antibacterials. Still, it is good to note that the P75 and P90 values further decreased, even though the P25 and P50 increased (*Table 15*). Nonetheless, the percentage of laying hens' farms with a green benchmark colour score increased to a record high of almost 96 % (*Figure 23*).

Table 15. Parameters describing the distribution of the farm-level antibacterial use in the reference populations for benchmarking of laying hens from 2018 to 2025 and the % difference (diff) over the years.

Parameters BD_{100}	2018	2019	2020	2021	2022	2023	2024	2025	diff 25-24	diff 25-18
P25	0,21	0,36	0,57	0,73	0,44	0,46	0,32	0,55	72,42%	162,05%
P50	0,55	1,41	1,75	1,71	1,11	1,55	0,88	1,07	21,59%	96,29%
P75	1,33	3,26	2,47	3,26	1,93	2,98	1,84	1,66	-9,72%	24,28%
P90	2,91	5,27	6,55	5,26	3,75	3,99	3,52	3,46	-1,53%	18,84%
Mean	1,24	2,07	2,63	2,33	1,94	2,04	1,54	1,44	-6,47%	16,09%
Sum	81	136	205	156	142	147	108	104	-3,80%	28,59%
Total n farms	193	193	202	200	208	205	207	210	ND	ND
% farms with zero registrations[1]	66%	66%	61%	67%	65%	65%	66%	66%	ND	ND

[1] *Zero-registration farms were not included in the data for determining the parameter values.*



Date of application	Action value
01/01/2021	3

Figure 23. The percentages of farms, including zero-registration farms, in the reference population for benchmarking of laying hens in the three benchmark colour zones (left), as defined by the BD_{100}-thresholds of the reduction path for laying hens (right), with the currently applied thresholds indicated within the dotted line.

c) Other chicken 'meat', turkey and other chicken 'lay'.

In the other two chicken 'meat' categories the antibacterial use notably increased in 2025 compared to 2024 (*Table 16* and *Table 17*). It is unclear if the use levels in these categories are directly related to the broiler chickens, but it must be followed up in the next years. Also, an improved registration in SANITEL-MED for these categories could play a role, even though almost half of the propagation-selection farms did not note any antibacterial use. Also in turkeys, the antibacterial use was higher, confirming the turkeys as a small sector with substantial antibacterial use.

Table 16. Parameters describing the distribution of the farm-level antibacterial use in the reference populations for benchmarking of other chicken 'meat' categories and turkeys in 2024 and 2025.

Parameters BD_{100}	Chicken propagation-selection meat			Chicken rearing-propagation-selection meat			Turkey		
	2024	2025	diff 25-24	2024	2025	diff 25-24	2024	2025	diff 25-24
P25	0,41	0,61	49,17%	0,49	0,52	6,48%	1,43	1,75	21,69%
P50	1,03	1,42	38,50%	0,86	0,71	-17,62%	3,72	4,00	7,46%
P75	2,01	2,05	1,85%	1,72	1,86	8,39%	5,11	5,23	2,29%
P90	2,74	4,19	52,89%	2,66	3,79	42,25%	5,63	5,50	-2,46%
Mean	1,32	1,76	32,60%	1,23	1,41	14,34%	3,31	3,38	2,19%
Sum	70	98	40,10%	50	51	0,40%	60	51	-14,84%
Total n farms	105	107	ND	54	47	ND	18	15	ND
% farms with zero registrations[1]	50%	48%	ND	24%	23%	ND	0%	0%	ND

[1] *Zero-registration farms were not included in the data determining the parameter values.*

The remaining chicken lay sectors are quite small, requiring cautious interpretation of the results. Also here, a high number of farms did not register any antibacterial use.

Table 17. Parameters describing the distribution of the farm-level antibacterial use in the reference populations for benchmarking of other chicken 'lay' categories in 2024 and 2025.

Parameters BD_{100}	Chicken 'rearing' lay[2]			Chicken propagation-selection lay		
	2024	2025	diff 25-24	2024	2025	diff 25-24
P25	0,10	0,22	124,52%	0,32	0,78	146,32%
P50	0,36	0,29	-19,05%	0,42	0,80	91,97%
P75	0,64	0,54	-15,76%	1,12	0,80	-28,29%
P90	1,08	0,99	-8,34%	1,54	0,80	-47,83%
Mean	0,47	0,47	0,14%	0,82	0,79	-3,89%
Sum	11	14	26,27%	2,45	2,36	-3,89%
Total n farms	54	48	ND	10	7	ND
% farms with zero registrations[1]	57%	40%	ND	70%	57%	ND

[1] *Zero-registration farms were not included in the data determining the parameter values.*

[2] *This is a combined benchmark reference group of rearing lay and rearing-selection-propagation lay.*

In conclusion, the outcomes for the poultry sector in 2025 in general remain rewarding. Broilers, by far the largest contributors to antibacterial use, have maintained their use-level after a substantial reduction in 2024. This underscores again the sector's capacity for progress, independent from the reduction path, as the target BD_{100}-values have long been achieved by a majority of farms. It also clearly demonstrates that the sector is well positioned to take on more ambitious thresholds. The additional chicken categories and turkeys offer a more comprehensive view on the sector, but data over a longer period might be required to see patterns and potential relationships between categories.

The antibacterial use in veal calf farms

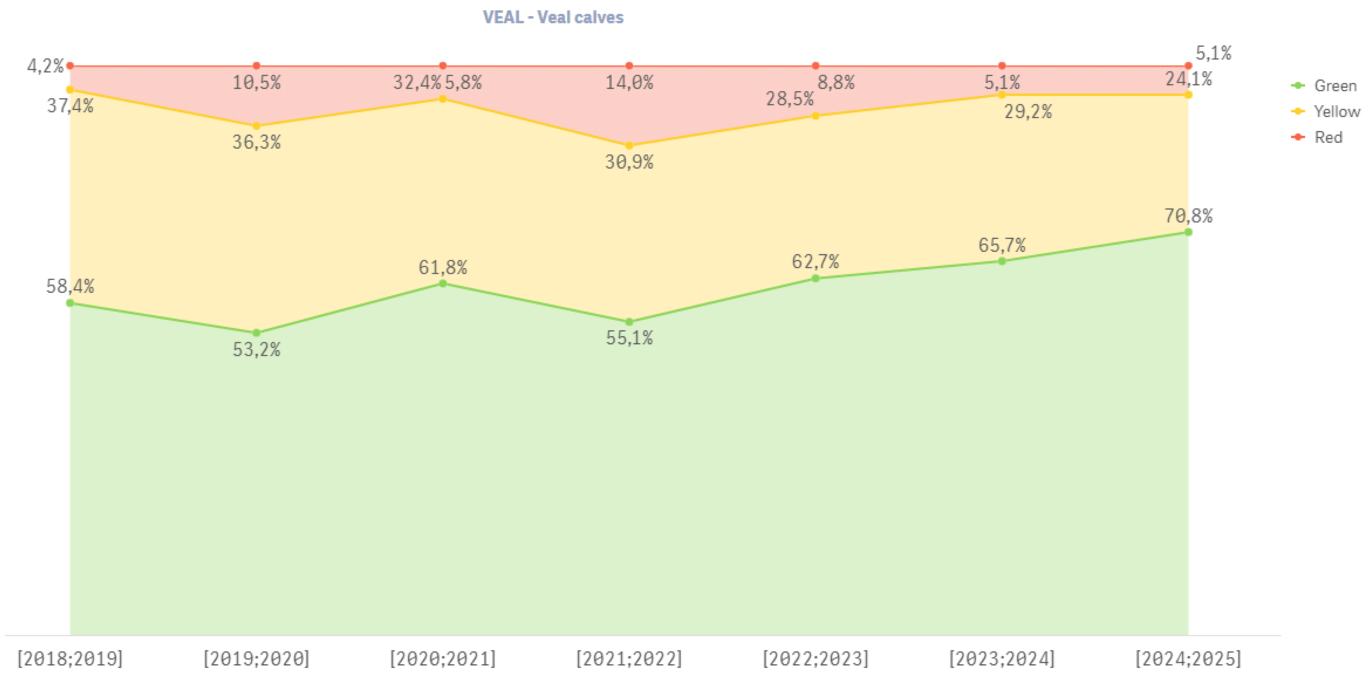
In line with the BD_{100}-species result, and similar to the last two years, the veal calf farm-level results show a modest progress, achieving a slight reduction across the benchmark reference group in 2024/25 compared to 2023/24 (*Table 18*). This confirms that this sector continues to make progress in small steps.

Table 18. Parameters describing the distribution of the farm-level antibacterial use in the reference populations for benchmarking of veal calves from 2018 to 2025 and the % difference (diff) over the years.

Parameters BD_{100}	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	diff 24/25 – 23/24	diff 24/25-18/19
P25	9,18	7,49	6,84	5,83	5,77	5,94	5,77	**-2,76%**	**-37,09%**
P50	11,24	9,79	8,76	7,74	7,23	7,08	6,84	**-3,36%**	**-39,17%**
P75	14,23	12,31	11,27	9,63	9,08	8,87	8,30	**-6,34%**	**-41,65%**
P90	16,93	15,11	13,79	11,44	10,71	10,19	9,89	**-2,89%**	**-41,55%**
Mean	11,90	10,30	9,30	7,97	7,54	7,45	7,17	**-3,75%**	**-39,78%**
Sum	2 821	2 441	2 242	1 881	1 712	1 609	1 549	**-3,75%**	**-45,11%**
Total n farms	238	237	241	236	228	216	216	ND	ND
% farms with zero registrations[1]	0,4%	0,0%	0,0%	0,0%	0,4%	0,0%	0,0%	ND	ND

[1] *Zero-registration farms were not included in the data determining the parameter values.*

The number of farms in the red benchmark colour zone remained stable just above 5 % but the number of farms with a green benchmark colour score further increased to over 70 % (*Figure 24*).



Date of application	Attention value	Action value
01/01/2021	10	15
01/01/2023	8	11

Figure 24. The percentages of farms, including zero-registration farms, in the reference population for benchmarking of veal calves in the three benchmark colour zones (left), as defined by the BD_{100}-thresholds of the reduction path for veal calves (right), with the currently applied thresholds indicated within the dotted line.

In conclusion, the 2025 results for veal calves once again highlight that this sector faces persistent high levels of antibacterial use which are difficult to substantially reduce. The efforts made so far deserve recognition and should encourage the sector to maintain its good work. Working collaboratively with all stakeholders involved to identify and implement the necessary next steps remains vital.

The antibacterial use in dairy and beef cattle

a) Distribution of the antibacterial use in dairy and beef cattle

In both dairy (*Table 19*) and beef (*Table 20*) cattle, the youngest calves (0-3 months old) remained the highest users of antibacterials, followed by the adult animals. The large variation between the lower and higher users in the calves, with the P90 being approx. 8 times higher than the P50, also remained, as previously illustrated in the boxplots (*Figure 13*). This stands in contrast to pigs, broilers and veal calves, and underscores the difference between sectors with a decade of experience in monitoring antibacterial use and those that have started more recently. It also confirms opportunities for improvement, as the P90 in calves ranks the second highest across all monitored animal categories.

In dairy cattle, overall, use decreased between 2024 and 2025. In beef cattle however, use slightly increased in the 'middle-age' categories but decreased in the youngest calves and adult animals.

Table 19. Parameters describing the distribution of the farm-level antibacterial use in the reference populations for benchmarking of dairy cattle in 2024 and 2025, and the % difference (diff) between these years.

Parameters BD_{100}	Milk calves 0-3 months			Milk calves 4-8 months			Milk young stock 9-24 months			Milk adult animals +24 months		
	2024	2025	diff 25-24	2024	2025	diff 25-24	2024	2025	diff 25-24	2024	2025	diff 25-24
P25	0,00	0,00	-	0,00	0,00	-	0,00	0,00	-	0,33	0,29	-11,28%
P50	1,74	1,43	-17,61%	0,00	0,00	-	0,00	0,00	-	0,79	0,71	-10,65%
P75	6,34	5,46	-13,88%	0,34	0,37	6,87%	0,04	0,04	0,00%	1,31	1,14	-12,80%
P90	13,11	10,82	-17,49%	1,70	1,56	-7,90%	0,24	0,24	-0,08%	1,97	1,68	-14,51%
Mean	4,67	3,92	-16,05%	0,54	0,52	-4,31%	0,11	0,10	-5,37%	0,96	0,85	-12,16%
Sum	15 477	13 574	-12,30%	2 296	2 157	-6,07%	522	479	-8,31%	4.461	3.750	-15,95%
Total n farms	3 314	3 462		4 224	4 402		4 713	4 567		4 633	4 438	
% farms with zero registrations[1]	0%	0%		0%	0%		0%	0%		0%	0%	

[1] *Zero-registration farms are, currently, as a rule excluded from the benchmark reference groups in cattle.*

Table 20. Parameters describing the distribution of the farm-level antibacterial use in the reference populations for benchmarking of beef cattle in 2024 and 2025, and the % difference (diff) between these years.

Parameters BD_{100}	Beef calves 0-3 months			Beef calves 4-8 months			Beef young stock 9-24 months			Beef adult animals +24 months		
	2024	2025	diff 25-24	2024	2025	diff 25-24	2024	2025	diff 25-24	2024	2025	diff 25-24
P25	0,00	0,02	-	0,00	0,00	-	0,00	0,00	-	0,13	0,13	1,57%
P50	1,60	1,54	-4,06%	0,00	0,00	-	0,00	0,00	-	0,36	0,34	-4,21%
P75	6,55	5,76	-12,16%	0,47	0,52	10,44%	0,04	0,04	8,33%	0,76	0,71	-5,86%
P90	13,65	11,84	-13,27%	1,81	1,87	3,26%	0,18	0,19	6,77%	1,42	1,30	-8,06%
Mean	4,79	4,18	-12,73%	0,58	0,63	8,36%	0,08	0,08	8,63%	0,73	0,63	-14,04%
Sum	9 837	10 654	8,31%	2 513	2 674	6,40%	414	454	9,58%	3 781	3 225	-14,88%
Total n farms	2 053	2 548		4 325	4 247		5 375	5 422		5 160	5 110	
% farms with zero registrations[1]	0%	0%		0%	0%		0%	0%		0%	0%	

[1] *Zero-registration farms are, currently, as a rule excluded from the benchmark reference groups in cattle.*

b) Sales and use of intramammary injectors

In cattle, the adult animals are the main category from an economical point-of-view, and, while not leading in terms of treatment days, they remain significant due to high not-standardised quantities of antibacterial use and because of the use of intramammary tubes, often as a common practice. In 2025 the sales of injectors for both dry cow therapy (dry cow, DC) and mastitis treatment during the lactating period (lactating cow, LC), expressed as the number of injectors sold per cow per year, decreased compared to 2024, returning to the 2023 level (*Figure 25)*. Remarkably, the use quantities registered in SANITEL-MED in 2025 remained considerably lower than the sales quantities, even though the use quantity of DC tubes was similar to that in 2024. This confirms the likeliness of underreporting of the antibacterial use in the sector.

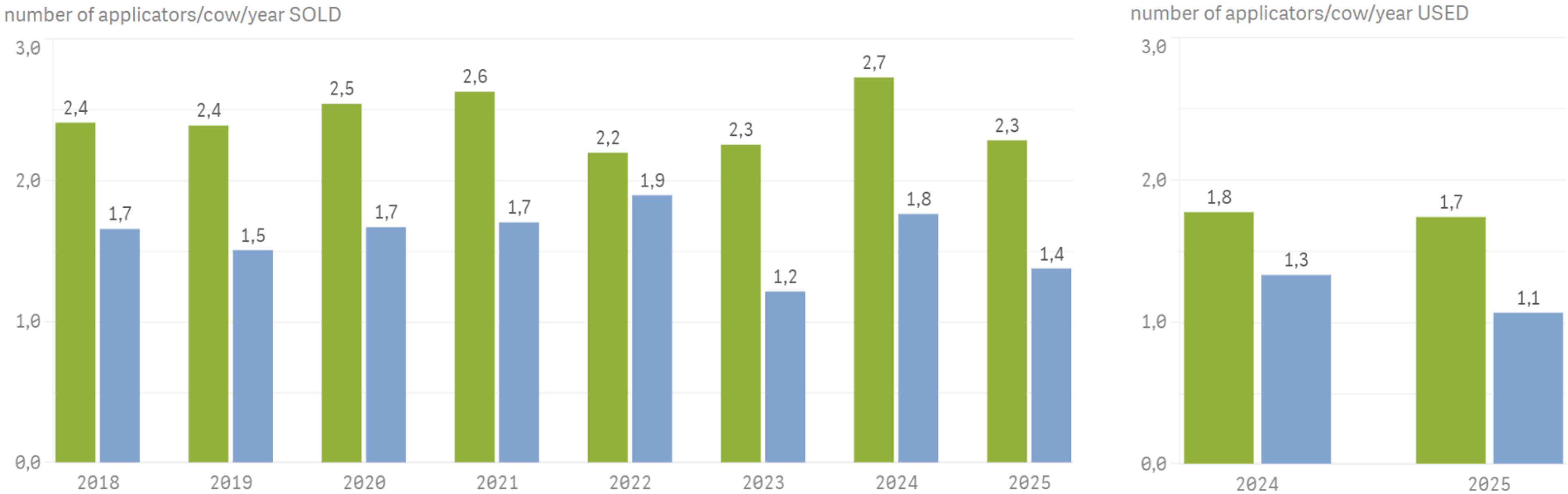


Figure 25. Number of intramammary preparations sold per cow per year between 2018 and 2025 vs the number of intramammary preparations used in 2024 and 2025.

In conclusion, the 2025 results for cattle are mixed. Calves aged 0-3 months are confirmed as the main target for general reduction efforts, where the focus should be on the small group of exceptionally high users. Signs that the use is already lowering are apparent in the data; however, the main issue is the uncertainty about the quality of the use data, as shown again in the disparity between the sales and reported use of intramammary tubes. As data-collection is by now truly leaving the start-up phase, especially in the dairy sector, serious and urgent actions need to be taken by all stakeholders to improve data quality the coming years.

Sales of antibacterial VMPs for other animals kept or bred

By distinguishing VMPs based on the species they are authorised for and combining this with the Belgian denominator data available via the FEDIAF reports, it is possible to monitor standardised sales data of products that are only authorised for use in animals not intended for human consumption ('other animals kept or bred'). This methodology resembles that of the European Medicines Agency (EMA) in the ESUAvet reports, although for that analysis the distinction is made based on the establishment of maximum residue limits (MRLs) or the prohibition for use in any food-producing animals as per Tables 1 and 2 of the Annex to Commission Regulation (EU) No 37/2010. Anyhow, it must be noted that this analysis gives only a partial view of the numerator, as many products are authorised for food-producing and non-food-producing species and consequently, these products have not been included in the current analysis. Furthermore, in the ESUAvet report the numerator data of a year are standardised with the denominator data from the previous year, while for the Belgian mg/kg indicator presented below the numerator and denominator data are corresponding year-on-year.

In 2025, the kg active substance sold for other animals kept or bred decreased with 12,7 % (***Figure 26)***.

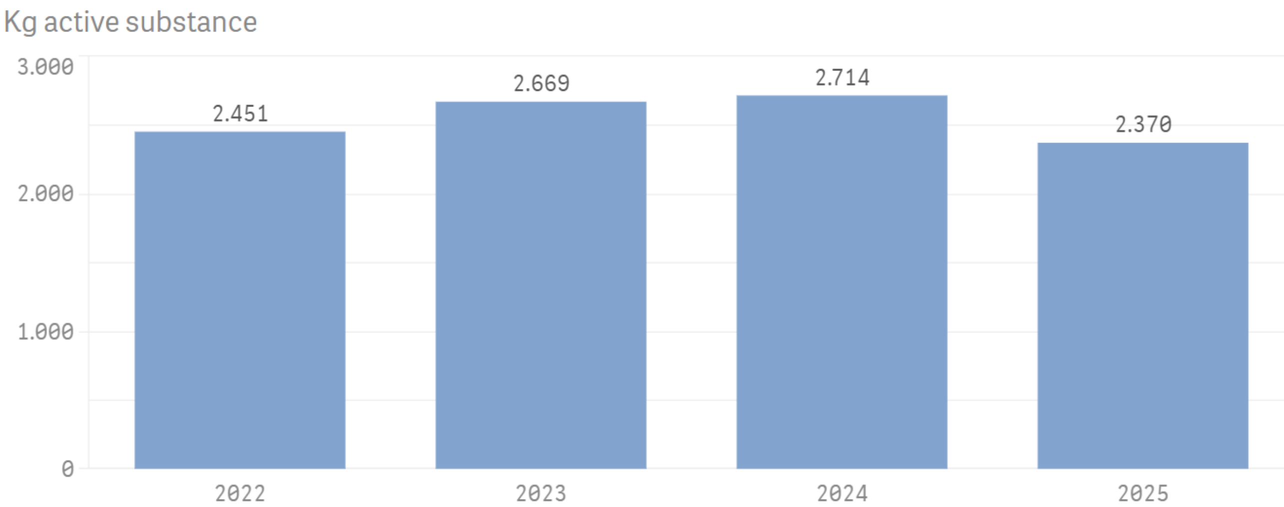


Figure 26. Kg antibacterial active substance sold from VMPs authorised for use in other animals kept or bred between 2018 and 2025.

Corresponding denominator data on dogs and cats are currently not available for 2025; for the years 2022-2024, the data are shown in ***Table 21***.

Table 21. Biomass of cats and dogs for Belgium from 2022 to 2024.

	Kg Animals at risk (x 10^3)		
	2022	**2023**	**2024**
DOGS	40 580	41 040	41 700
CATS	10 144	12 316	12 512

Combined, the standardised sales data of antibacterial active substance for 'other animals kept or bred' is shown in ***Figure 27*** for the years 2022-2024. After a modest increase between 2022 and 2023 (8,5 %), the 2024 result virtually equalled that of 2023.

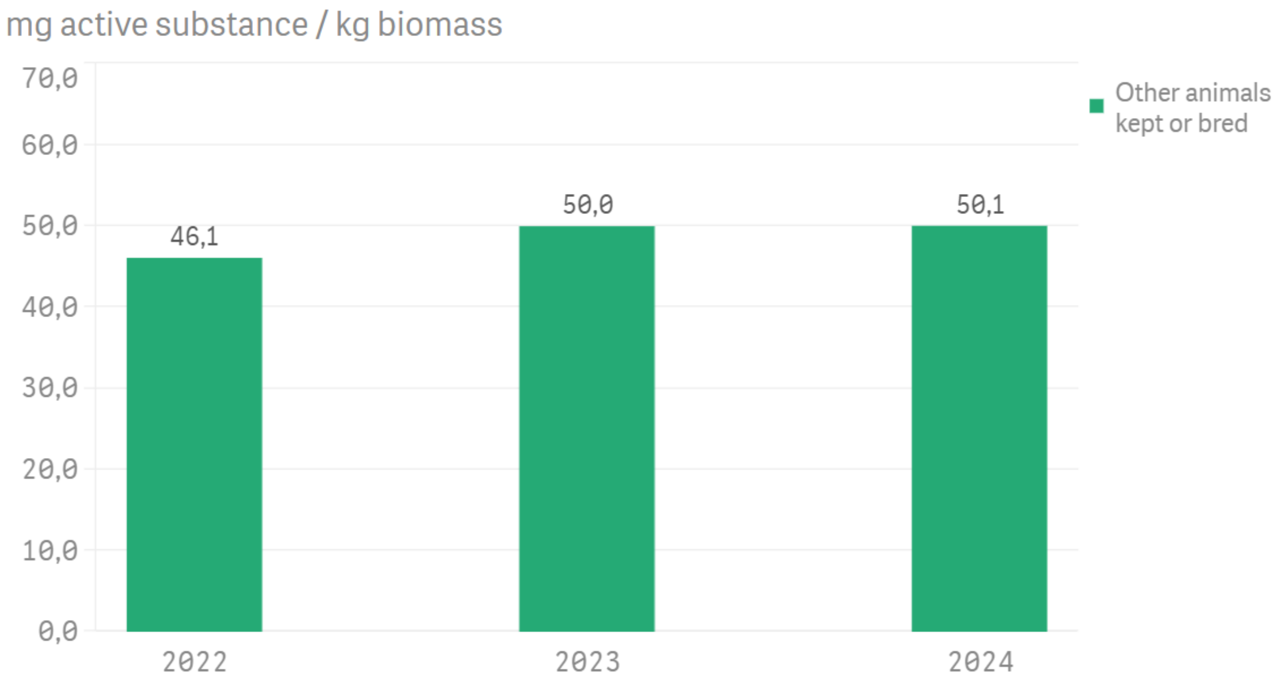


Figure 27. Mg antibacterial active substance sold from VMPs authorised for use in other animals kept or bred standardised with the kg biomass of dogs and cats in Belgium between 2022 and 2024.

SALES AND USE OF ANTIBACTERIAL VMPS PER ANTIBACTERIAL CLASS AND ADMINISTRATION ROUTE

Sales of antibacterial VMPs per antibacterial class

Antibacterial pharmaceuticals and antibacterial premixes can be classified into different antibacterial classes based on their active antibacterial substance. The classification used in this report can be found in Annex II – Additional figures and tables.

Figure 28 depicts the proportion of the sales per antibacterial class for 2025.

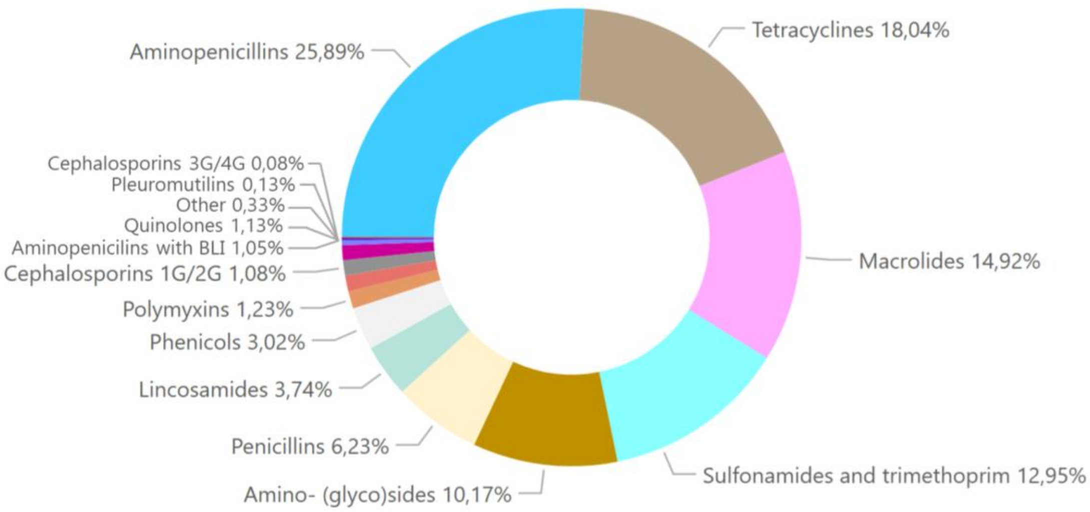


Figure 28. Proportion of sales of antibacterial pharmaceuticals and antibacterial premixes per antibacterial class in 2025.

Aminopenicillins remain the most widely sold antibacterial class in 2025, representing 25,9 % of all veterinary antibacterial sales (26,5 tonnes). When aminopenicillins combined with clavulanic acid are included, their share rose to 32,9 % (27,6 tonnes). Tetracyclines followed with 18,0 % (18,5 tonnes), ahead of macrolides at 14,9 % (15,3 tonnes), sulfonamides combined with trimethoprim at 13,0 % (13,3 tonnes), and amino(glyco)sides at 10,2 % (10,4 tonnes). Penicillins accounted for 6,23 %. Seven classes each represented less than 3 % of total sales.

__Table 22__ and *__Figure 29__* present the six-year trends in the sales of antibacterial pharmaceuticals and premixes by class, expressed in mg per kg of biomass.

Table 22. Evolution of the sales in mg/kg biomass per antibacterial class since 2018. In the evolution graph in the last column, the red dot marks the highest value recorded during the period, while the green dot represents the lowest.

Class AB Mg/Kg Biomass	2018	2019	2020	2021	2022	2023	2024	2025	18»19	19»20	20»21	21»22	22»23	23»24	24»25	2025%	Evolution
Aminopenicillins	30,41	30,07	30,81	26,89	22,44	17,53	17,51	13,32	-1,13 %	2,47 %	-12,72 %	-16,55 %	-21,87 %	-0,15 %	-23,94 %	25,89 %	
Tetracyclines	26,12	19,83	19,18	17,32	13,29	9,58	9,33	9,28	-24,08 %	-3,28 %	-9,70 %	-23,30 %	-27,89 %	-2,63 %	-0,56 %	18,04 %	
Macrolides	5,95	5,52	6,42	6,62	6,28	7,18	7,96	7,67	-7,25 %	16,39 %	3,04 %	-5,14 %	14,46 %	10,85 %	-3,62 %	14,92 %	
Sulfonamides and trimethoprim	18,24	17,69	16,72	16,35	12,16	7,31	8,70	6,66	-3,04 %	-5,50 %	-2,20 %	-25,60 %	-39,86 %	18,89 %	-23,38 %	12,95 %	
Amino- (glyco)sides	3,74	4,55	4,27	4,53	4,37	3,96	5,55	5,23	21,59 %	-6,21 %	6,12 %	-3,63 %	-9,30 %	40,22 %	-5,80 %	10,17 %	
Penicillins	5,11	4,22	4,19	3,84	5,23	3,85	3,54	3,21	-17,29 %	-0,91 %	-8,34 %	36,38 %	-26,33 %	-8,10 %	-9,49 %	6,23 %	
Lincosamides	2,20	2,57	2,32	1,90	2,09	1,43	2,12	1,92	16,73 %	-9,88 %	-18,08 %	10,25 %	-31,49 %	47,74 %	-9,20 %	3,74 %	
Phenicols	1,59	1,56	1,57	1,81	1,82	1,52	1,63	1,55	-1,79 %	0,41 %	15,33 %	0,87 %	-16,43 %	6,75 %	-4,60 %	3,02 %	
Polymyxins	1,73	1,50	1,33	1,16	0,57	0,62	0,69	0,63	-13,25 %	-11,24 %	-12,62 %	-50,79 %	8,01 %	12,27 %	-8,90 %	1,23 %	
Quinolones	0,44	0,48	0,65	0,35	0,59	0,53	0,40	0,58	9,84 %	36,69 %	-46,02 %	66,43 %	-10,25 %	-23,39 %	43,23 %	1,13 %	
Cephalosporins 1G/2G	0,38	0,52	0,62	0,60	0,49	0,64	0,58	0,56	37,93 %	19,31 %	-3,73 %	-17,49 %	29,40 %	-9,02 %	-4,33 %	1,08 %	
Aminopenicillins with BLI	0,49	0,56	0,55	0,57	0,55	0,63	0,64	0,54	14,55 %	-3,05 %	4,52 %	-2,98 %	14,42 %	0,67 %	-15,33 %	1,05 %	
Other	0,14	0,15	0,14	0,18	0,16	0,23	0,19	0,17	12,63 %	-10,70 %	32,61 %	-10,71 %	38,59 %	-15,59 %	-10,21 %	0,33 %	
Pleuromutilins	0,74	0,55	0,27	0,18	0,16	0,13	0,06	0,07	-25,92 %	-50,59 %	-31,99 %	-13,56 %	-21,01 %	-53,27 %	14,01 %	0,13 %	
Cephalosporins 3G/4G	0,07	0,07	0,07	0,06	0,05	0,06	0,06	0,04	-5,48 %	3,61 %	-13,49 %	-16,97 %	22,20 %	2,01 %	-30,16 %	0,08 %	

In 2025, the sales (in mg/kg biomass) of all main antibacterial classes decreased, with three of them reaching their lowest level on record. In contrast, quinolone sales increased substantially, with a rise of **43,23 %**.

The evolution graphs in *Figure 29* illustrate the consistent downward trend between 2018 and 2025 for aminopenicillins, sulfonamides/trimethoprim combination, penicillins and polymyxins. A downward trend is also observed for tetracyclines, lincosamides and pleuromutulins even though sales increased in the last year.

While quinolone sales have shown fluctuations over time, the overall trend remains relatively stable, though a slight increase is noticeable. For cephalosporins of the 3rd and 4th generation, the overall sales trend remains stable.

Macrolides, amino(glyco)sides, phenicols, aminopenicillins associated with clavulanic acid, 1st and 2nd generation cephalosporines and the group of 'other' show increasing trends.

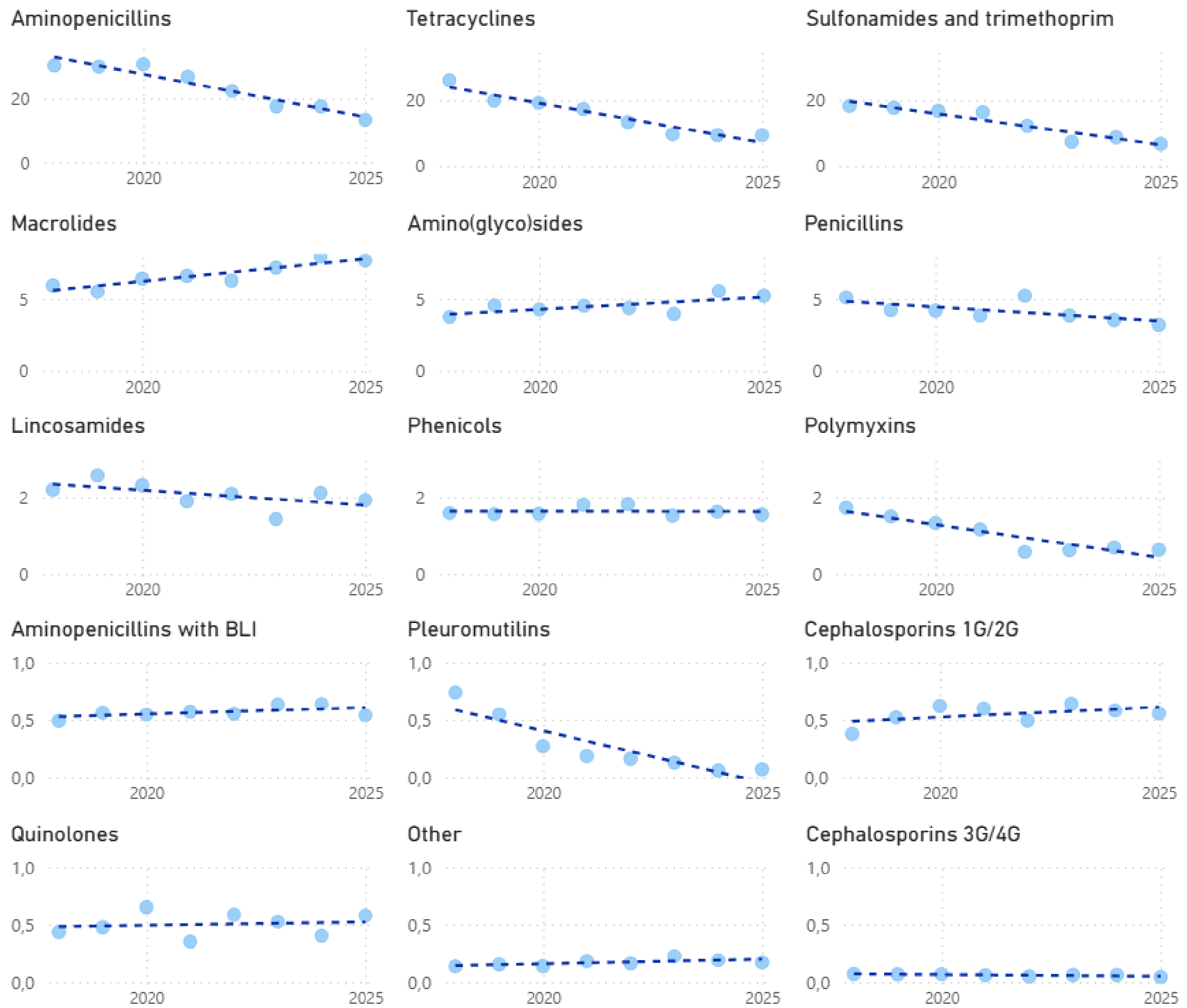


Figure 29. Trend lines for the sales (mg/kg biomass) per antibacterial class between 2018 and 2025.

Sales of antibacterial VMPs per administration route

In 2025, VMPs for oral administration accounted for a bit more than three quarters of the sales of antibacterials, followed by injectable VMPs (15,46 %), premixes (4,67 %) and VMPs for intramammary use (0,52 %) (***Figure 30***). The share of VMPs with 'Other' administration routes corresponds roughly half/half to intra-uterine and cutaneous VMPs. Compared to 2024, the distribution across the different routes of administration remained stable.

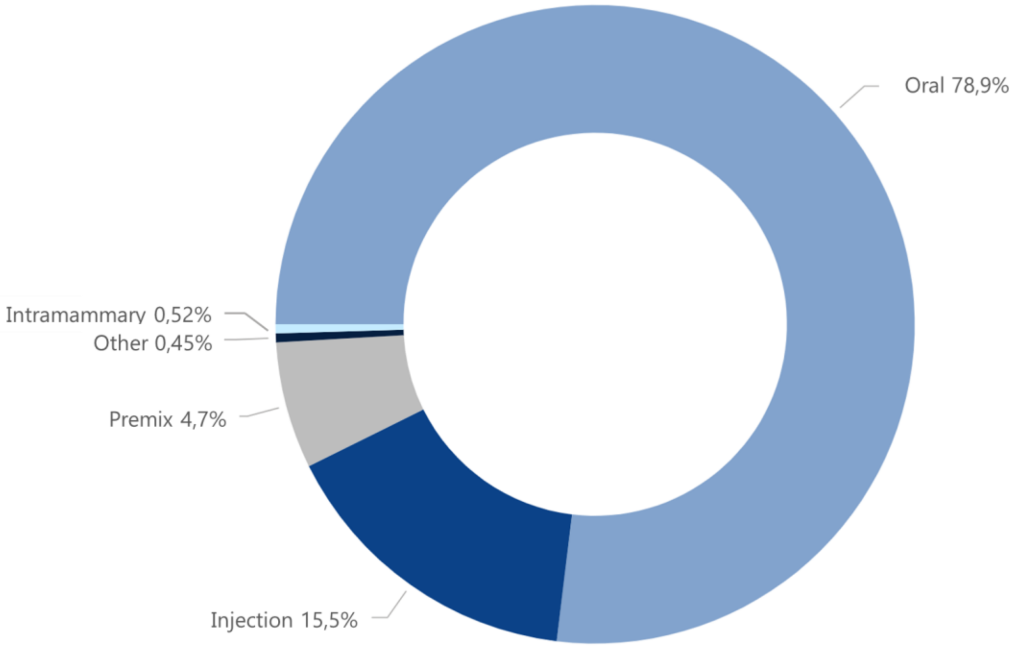


Figure 30. Proportion of sales of antibacterial pharmaceuticals and antibacterial premixes per administration route in 2025.

Sales of antibacterial VMPs per antibacterial class and administration route

The vast majority of antibacterial classes sold in 2025 were formulated as VMPs for oral administration (***Figure 31***). For the penicillins and phenicols, the proportion of injectable VMPs increased compared to 2024. For cephalosporins, the proportion of injectable VMPs increased. Specifically, for the 1st and 2nd generation cephalosporins, a shift is noted towards injectable and intramammary VMPs compared to VMPs for oral use.

Most premixes contain pleuromutilins (tiamulin), aminopenicillins, and tetracyclines.

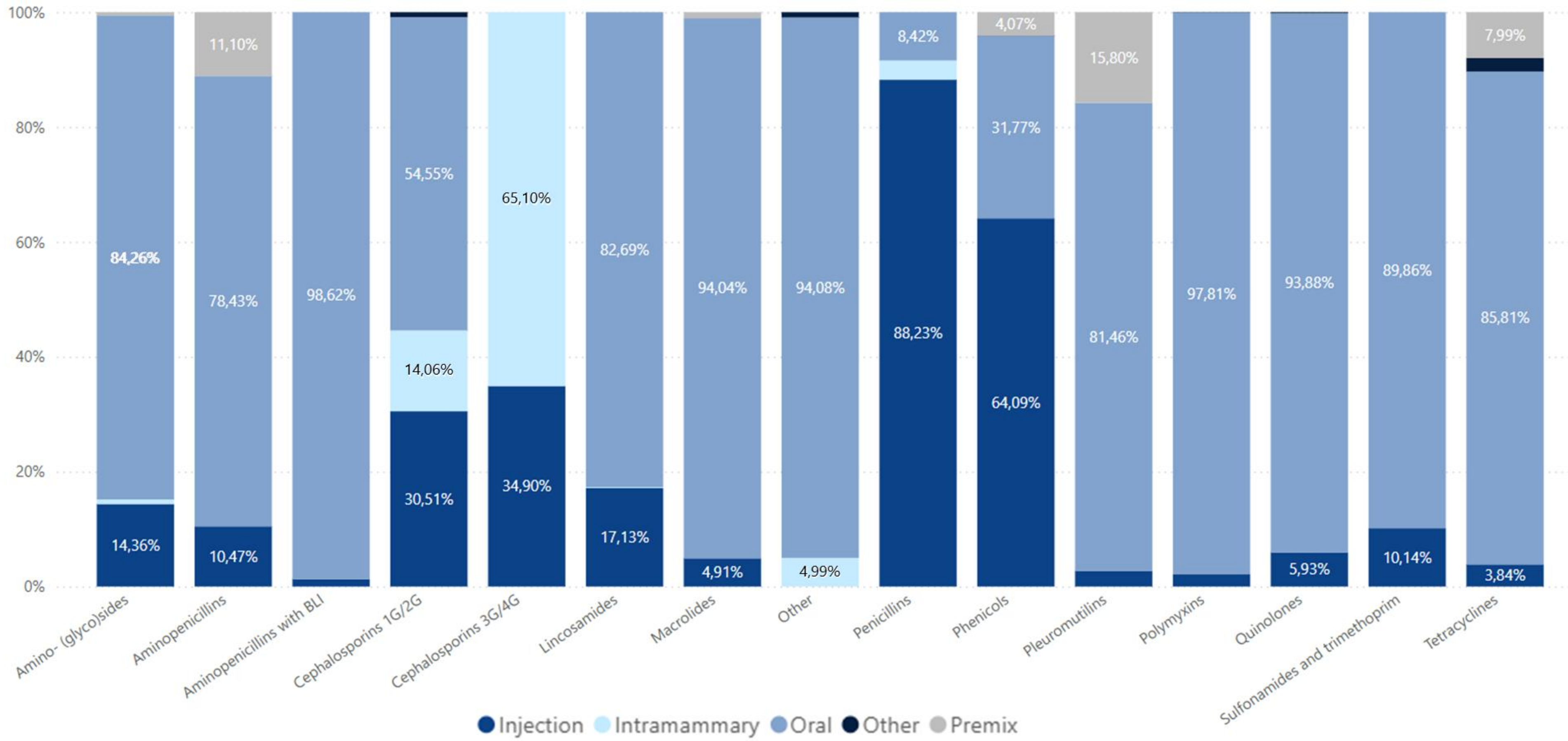
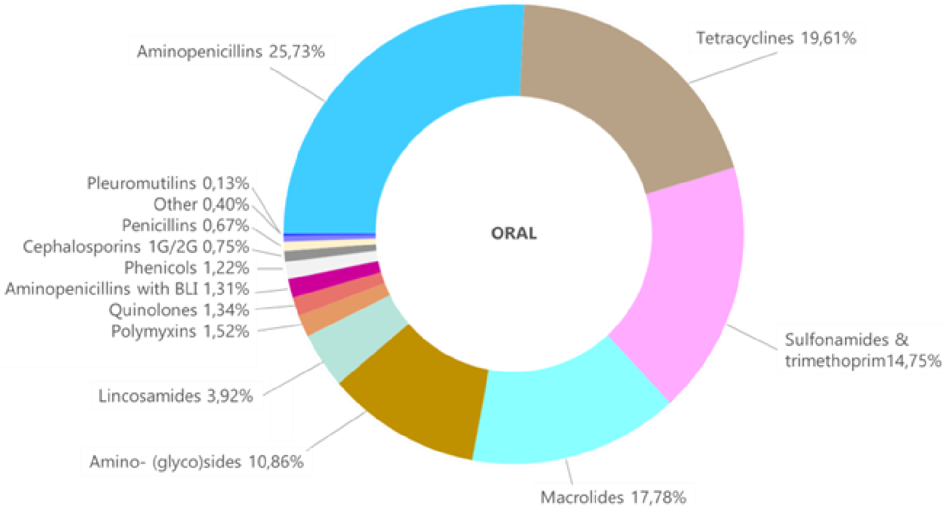
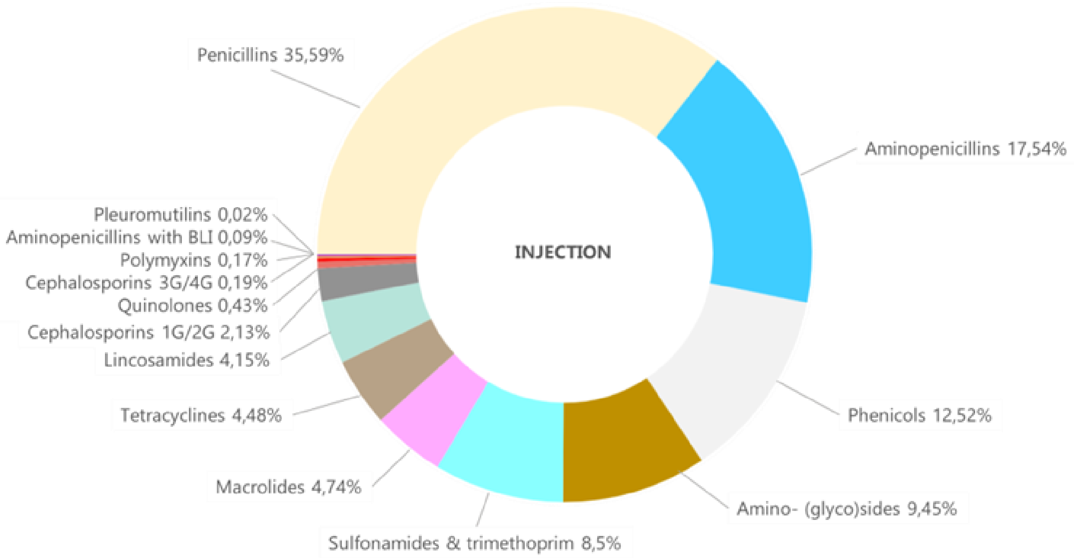
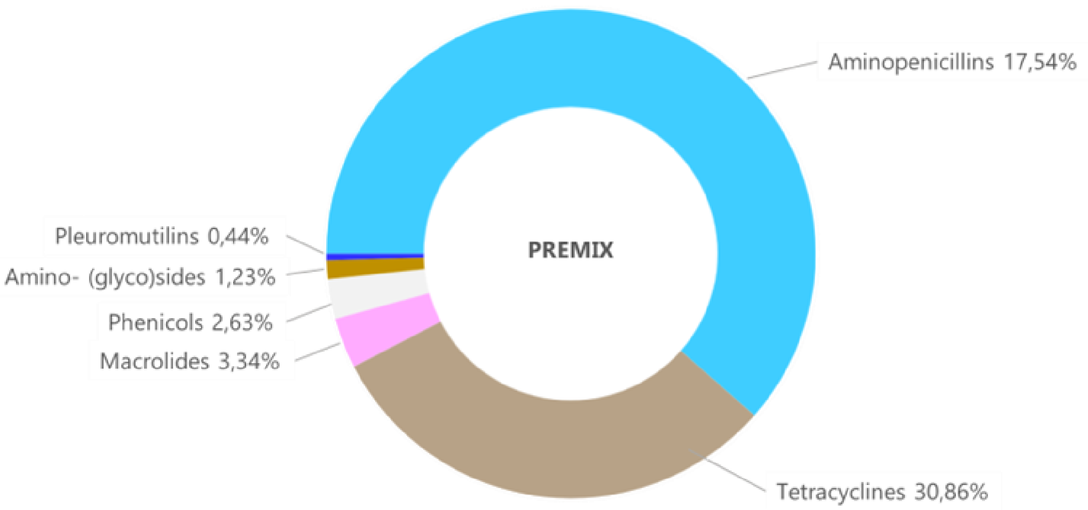


Figure 31. Proportion of sales (mg/kg biomass) per administration route for each antibacterial class in 2025.

Figure 32 depicts the proportion of each antibacterial class per administration route for 2025 (legend at the end of the graph, p. 61). As oral VMPs account for the majority of sales across nearly all antibacterial classes, their distribution looks very similar to the overall sales distribution presented in ***Figure 28***. The largest shares are held by aminopenicillins (25,73 %), tetracyclines (19,61 %), macrolides (17,78 %) and the combination of sulfonamides and trimethoprim (14,75 %). For injectable VMPs, the top three classes are somewhat different, with penicillins leading (35,59 %), followed by aminopenicillins (17,54 %) and phenicols (12,52 %). The penicillins are also the most common antibacterial class for intramammary VMPs (40,04 %), followed by the 1st and 2nd generation cephalosporins (29,14 %), amino(glyco)sides (15,42 %) and 3rd and 4th generation cephalosporins (10,50 %). Tetracyclines remain the largest portion of premix VMPs, accounting for 95,46 %.







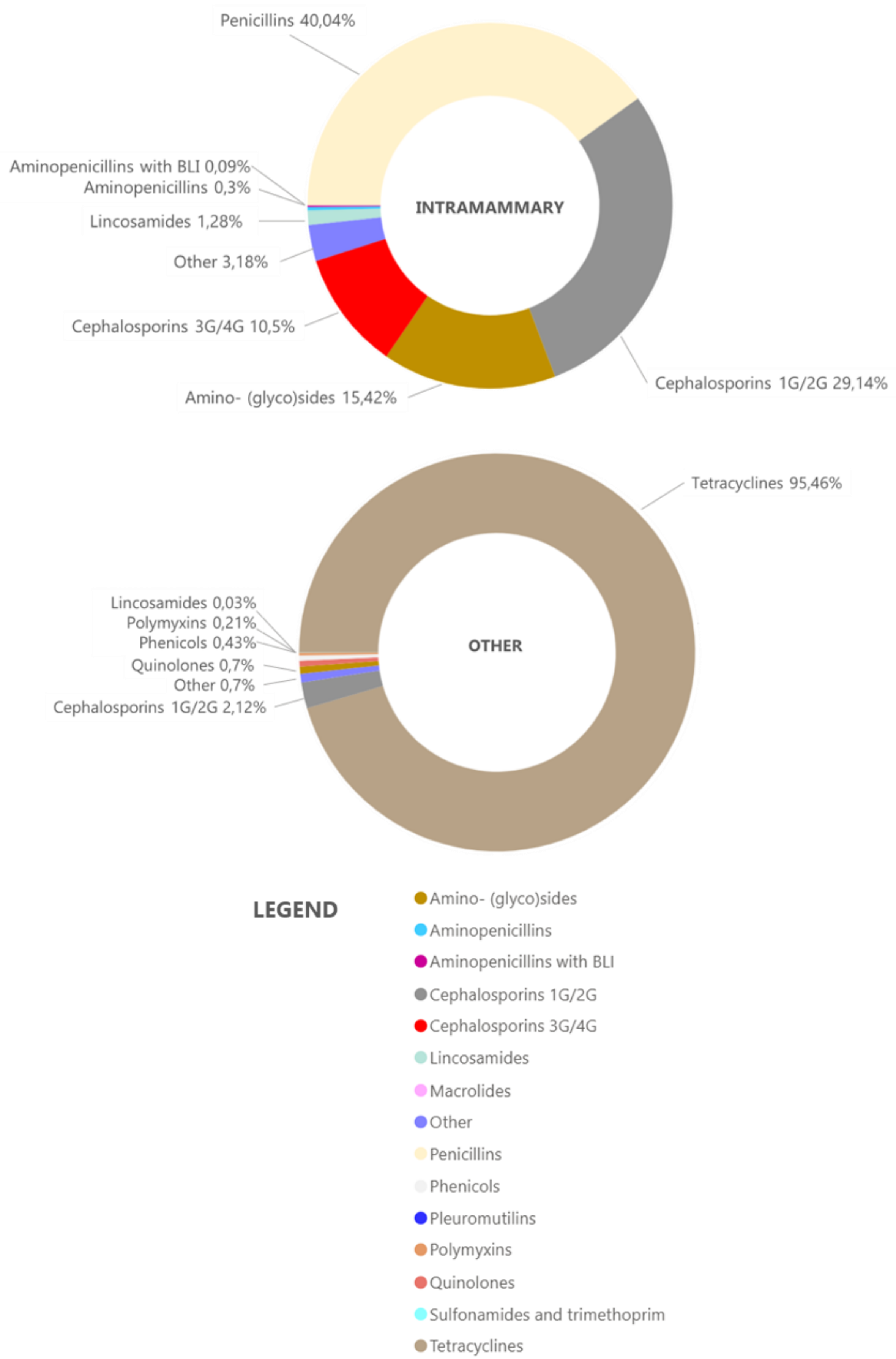


Figure 32. Proportion of sales (mg/kg biomass) per antibacterial class for each administration route in 2025.

Comparison of SANITEL-MED use data with sales data per antibacterial class

As in previous years, the rankings of the most sold vs. the most used antibacterial classes largely correspond (***Table 23***). Pig farms account for the majority of aminopenicillins, tetracyclines, sulfamides, phenicols, polymyxins and pleuromutilins, whereas poultry remain the primary consumers of macrolides, amino(glycol)sides and quinolones, and, in 2025, also surpassing the pigs as consumers of lincosamides. Dairy and beef cattle have the greatest share of penicillins and cephalosporins. Noteworthy, 1[st] and 2[nd] generation cephalosporins, aminopenicillins with beta-lactamase inhibitors and the 'other' antibacterials remain largely unaccounted for in the currently available use data.

Table 23. Total tonnes per antibacterial class sold in 2025 vs. tonnes used in pigs, poultry, veal calves, and dairy and beef cattle ('bovines') as reported in SANITEL-MED in 2025. Next to the absolute number of tonnes used, the % this covers of the sales data is shown.

Antibacterial class	Sales 2025	Total use 2025	% sales	Use in pigs 2025	% sales (pig)	Use in poultry 2025	% sales (poultry)	Use in veal 2025	% sales (veal)	Use in bovines 2025	% sales (bovines)
Totals	**102,50**	**88,93**	**87%**	**44,73**	**44%**	**18,96**	**18%**	**13,46**	**13%**	**11,78**	**11%**
Aminopenicillins	26,54	28,09	106%	21,98	83%	1,67	6%	3,35	13%	1,09	4%
Tetracyclines	18,49	15,73	85%	9,01	49%	1,95	11%	3,26	18%	1,51	8%
Macrolides	15,29	13,71	90%	2,14	14%	8,13	53%	2,78	18%	0,66	4%
Sulfonamides and trimethoprim	13,28	9,85	74%	5,21	39%	1,18	9%	2,07	16%	1,39	10%
Amino(glyco)sides	10,43	8,50	82%	2,06	20%	3,09	30%	1,40	13%	1,95	19%
Penicillins	6,39	4,75	74%	0,51	8%	0,48	8%	0,06	1%	3,71	58%
Lincosamides	3,84	3,20	84%	1,34	35%	1,55	40%	0,04	1%	0,27	7%
Phenicols	3,09	2,60	84%	1,41	45%	0,02	1%	0,46	15%	0,71	23%
Polymyxins	1,26	1,11	88%	0,91	72%	0,15	12%	0,00	0%	0,05	4%
Quinolones	1,15	0,79	68%	0,00	0%	0,73	63%	0,05	4%	0,01	1%
Cephalosporins 1G/2G	1,11	0,33	30%	0,01	1%	0,00	0%	0,00	0%	0,32	29%
Aminopenicillins with BLI	1,08	0,04	4%	0,00	0%	0,00	0%	0,00	0%	0,04	4%
Other	0,34	0,01	4%	0,00	0%	0,00	0%	0,00	0%	0,01	4%
Pleuromutilins	0,13	0,16	121%	0,16	121%	0,00	0%	0,00	0%	0,00	0%
Cephalosporins 3G/4G	0,09	0,05	59%	0,00	0%	0,00	0%	0,00	0%	0,05	59%

Use per antibacterial class

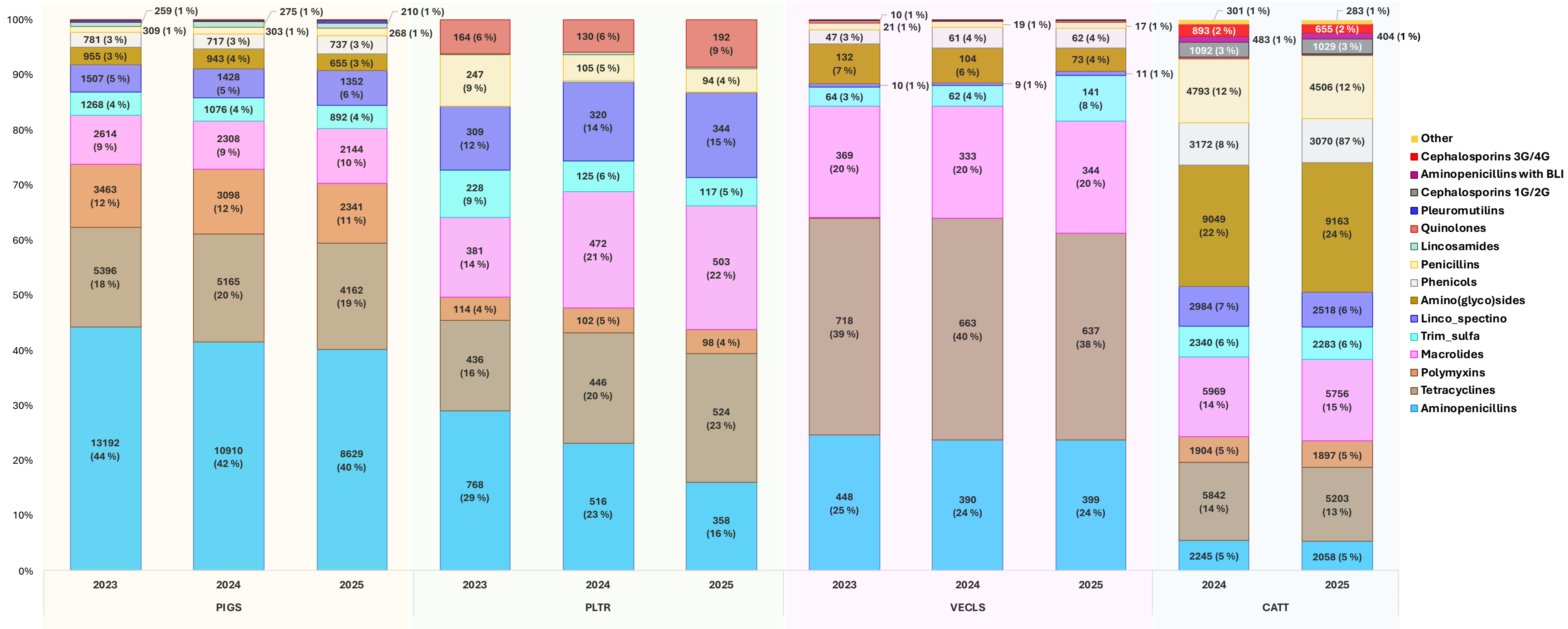


Figure 33. Number of treatment days with the different antibacterial classes and percentage of the total number of treatment days per species in 2023 to 2025 (2024- to 2025 for cattle). Numbers/percentages not shown are classes where the use was below 1 % of treatment days.

Figure 33 allows to assess the importance of the different antibacterial classes in each animal species, and how that evolved in the last three years, as well as making the comparison between the different species.

In pigs, the reduction in the usage of aminopenicillins continues, yet this antibacterial class still was by far the most used. All other classes showed reductions in absolute number of treatment days, but the share of macrolides and lincomycin-spectinomycin antibacterials slightly increased.

In poultry, the reduction of treatment days with aminopenicillins in 2025 was quite spectacular, its share almost halved since 2023, which was also the case for the natural penicillins. In contrast, the use of tetracyclines, macrolides and lincomycin-spectinomycin antibacterials increased both absolutely and relatively. Unfortunately, also the use of quinolones increased again (see also section Use of quinolones).

In veal calves, the use of most antibacterial classes remained stable, although the use of trimethoprim-sulfamide antibacterials increased and that of aminoglycosides decreased. The use pattern in cattle in 2025 also remained quite comparable to that in 2024.

Sales of intramammary antibacterial VMPs per antibacterial class

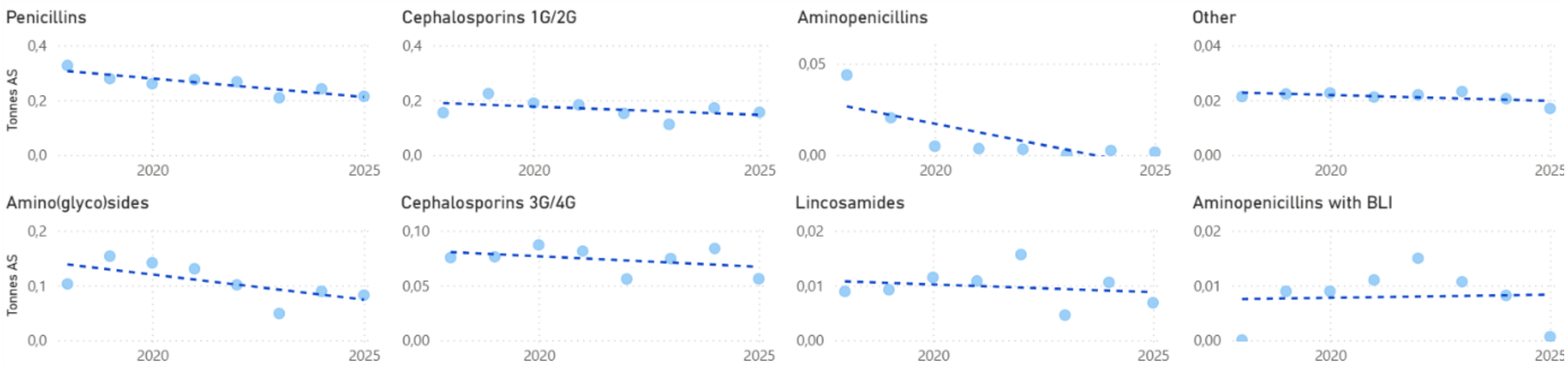


Figure 34. Evolution in sales of antibacterials (absolute quantities) for intramammary use per antibacterial class between 2018 and 2025.

Figure 34 presents the evolution in sales of intramammary VMPs per antibacterial class in the last seven years. In the most recent year, sales decreased for all classes, and most significantly for cephalosporins of the 3rd and 4th generation and lincosamides, affirming their decreasing trend, and aminopenicillins with a beta lactamase inhibitor (BLI). For the latter, this means the increasing trend is reversed.

Use of intramammary antibacterial VMPs per antibacterial class

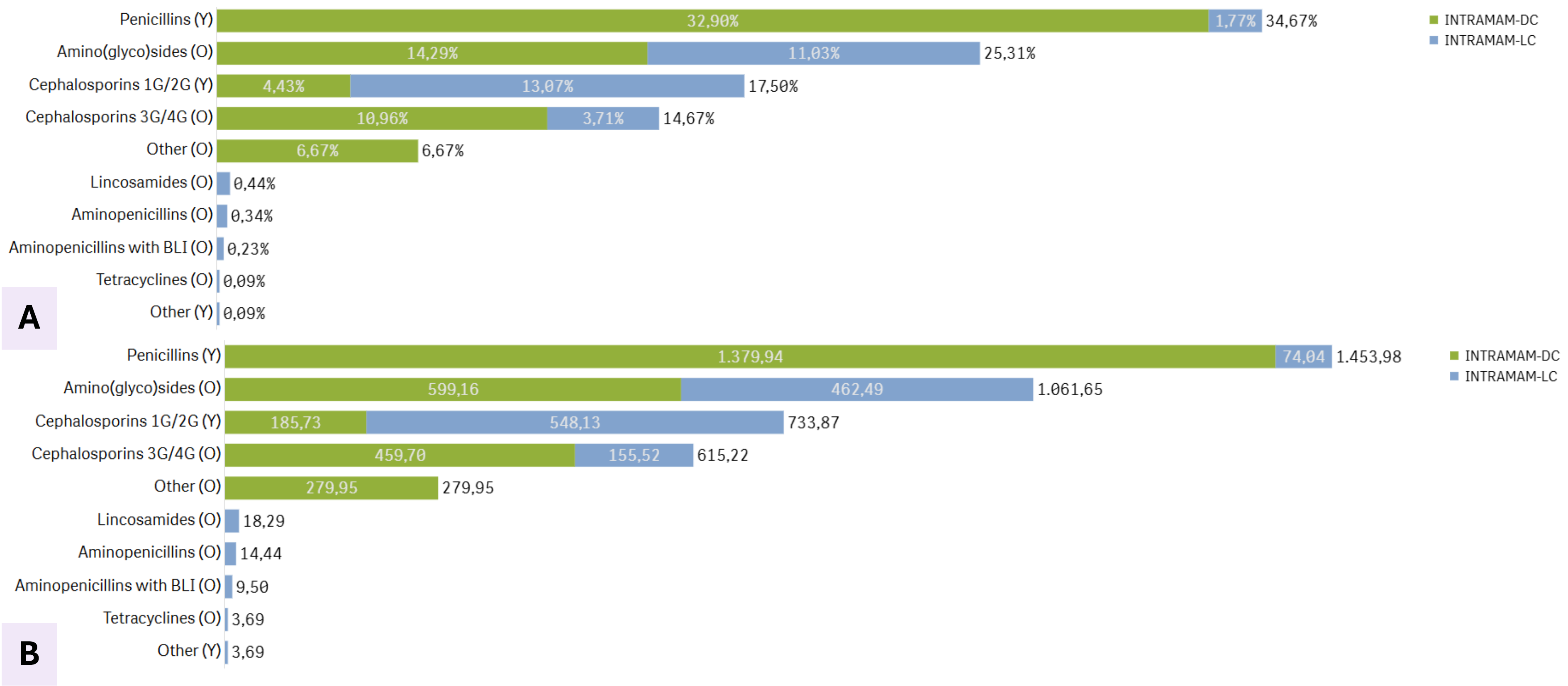


Figure 35. Use of the different antibacterial classes for intramammary application in 2025, in % (graph A) and in number of treatment days (graph B) with distinction among tubes used for LC or DC therapy.

The antibacterial use data offer a more detailed look into the importance of the different antibacterial classes for intramammary applications. They confirm the predominance of penicillins, accounting for approx. 1/3rd of treatment days, showing that these are mostly used for dry cow therapy (*Figure 35*). Amino(glyco)sides account for approx. a quarter of treatment days, yet being more evenly distributed over therapeutic and dry cow application. The 1st and 2nd generation cephalosporins come in third, and these are the main class in therapeutic intramammary use. The critically important 3rd and 4th generation cephalosporins are mostly used for drying off.

SALES AND USE OF ANTIBACTERIAL VMPS PER AMCRA COLOUR CODE

Sales of antibacterial VMPs per AMCRA colour code

The AMCRA[2] colour codes for veterinary antibacterial VMPs are linked to the AMCRA formulary which offers guidelines to veterinarians for responsible and prudent use of antibacterial VMPs. The first version of these guidelines, for the food producing animals pigs, poultry and cattle, was printed in 2013. Since then, guidelines for cats, dogs and horses have also been published and the printed versions have been supplemented by an online version[3] and a free app for iOS and Android.

These guidelines assign a colour code to the different antibacterial classes available in veterinary medicine, to differentiate and rank them in terms of their importance for public and animal health. This classification is based on the WHO list of antibacterial substances with importance for human medicine[4] and the lists produced by the World Organisation for Animal Health (WOAH), reflecting their relevance for veterinary medicine[5]. In determining the ranking of the antibacterial substances, priority was given to their importance for public health.

The VMPs with a yellow colour code contain antibacterial classes with the lowest importance for human medicine in terms of the risk for selection and transfer of AMR and therefore no additional restrictions beyond any legal requirements, are suggested for the use of these substances. They include certain penicillins, sulfonamides (and diaminopyrimidines), 1st and 2nd generation cephalosporins, as well as phenicols.

The VMPs with an orange colour code are of a higher importance for human medicine. These should therefore be used with caution in veterinary medicine, only after accurate diagnostics allowing targeted therapy. This group contains the highest number of different molecules including macrolides, lincosamides, polymyxins, amino(glyco)sides, tetracyclines and aminopenicillins.

The VMPs with a red colour code are of the highest importance for human medicine. Therefore, their use in veterinary medicine should be avoided as much as possible. AMCRA advises to only use these critically important antibiotics (CIAs) under very strict conditions. Their use in food producing animals is, in agreement with the AMCRA advise, regulated by royal decree since 2016. An extension of the legal requirements to all animals was implemented on September 1st, 2024. This group contains the 3rd and 4th generation cephalosporins and quinolones.

Figure 36 shows the proportion of the antibacterial sales in mg per kg biomass per AMCRA colour code for 2025. This figure illustrates that the orange-class continues to be the most widely used, accounting for 75,11 % of total usage, whereas the red-class molecules represent only a minimal share (1,15 %). It must be noted though that the red-class molecules are generally more modern molecules with a high potency and therefore a low molecular weight in relation to their treatment potential, leading to an inherently lower mass needed to treat an animal.

[2] www.amcra.be
[3] https://formularium.amcra.be/
[4] https://www.who.int/publications/i/item/9789241515528
[5] https://www.woah.org/app/uploads/2021/06/a-oie-list-antimicrobials-june2021.pdf

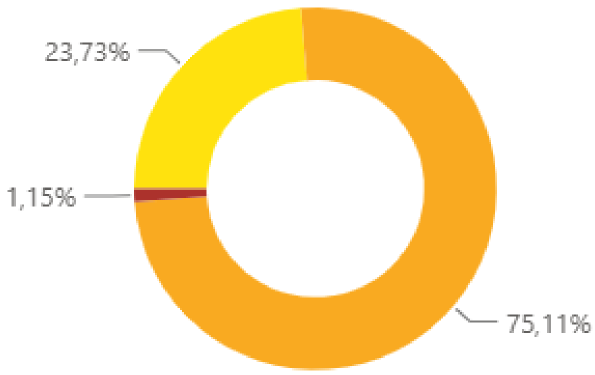


Figure 36. Proportion of sales, in mg active antibacterial substance per kg biomass, of antibacterial VMPs per AMCRA colour code in 2025.

Overall, the 2025 distribution of antibacterial sales in mg active substance per kg biomass per AMCRA colour code remains quite similar to last years (*Figure 37*). Albeit, the proportion of orange- and red-class products sold increased, resulting in a lower share of the yellow-class VMPs compared to the years before. Indeed, the share of red-class VMPs (1,15 %) unfortunately increased again and is now at the highest level since 2018.

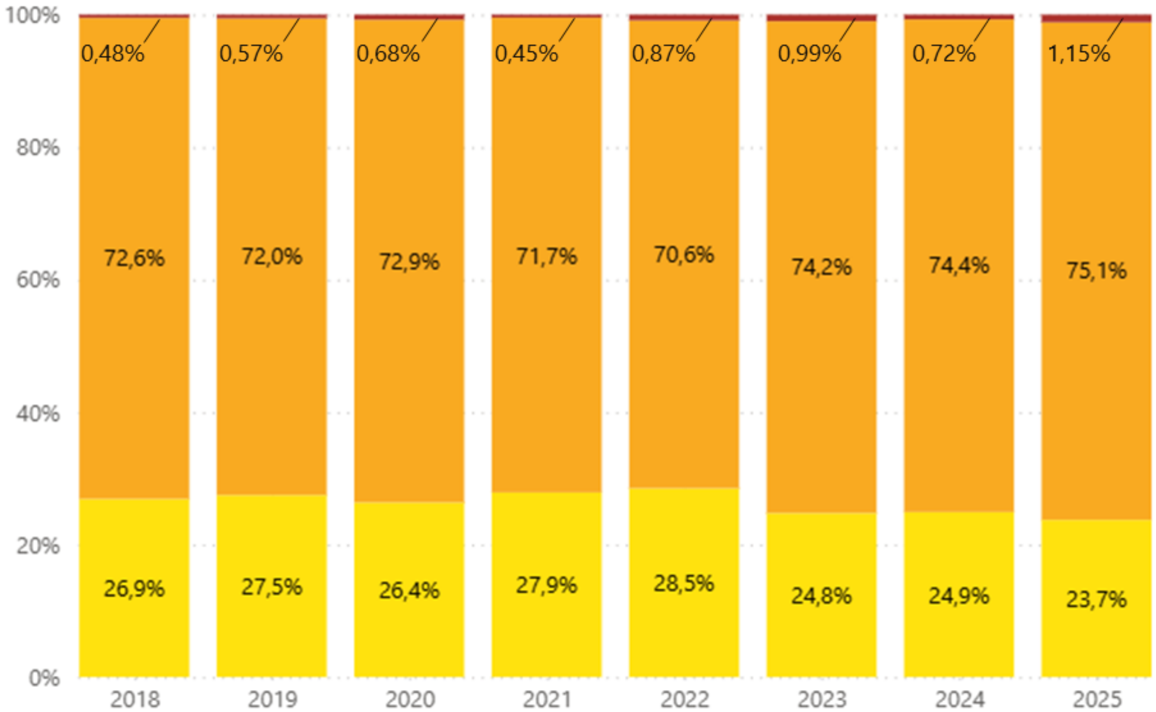


Figure 37. Evolution of the proportional distribution of the antibacterial sales (mg active substance/kg biomass) per AMCRA colour code between 2018 and 2025.

Figure 38 shows the evolutions for each AMCRA colour code separately, expressed in mg active substance per kg biomass. This illustrates that together with the stable proportions over time, the quantity of both orange- and yellow-class VMPs continues to steadily decrease, despite the increase of last year. The quantity of red-class VMPs remains consistently very low in comparison to the orange and yellow class, and due to their small absolute volume, their usage tends to relatively fluctuate more noticeably. In 2025, the red-class VMPs increased considerably, returning to levels seen in 2022.

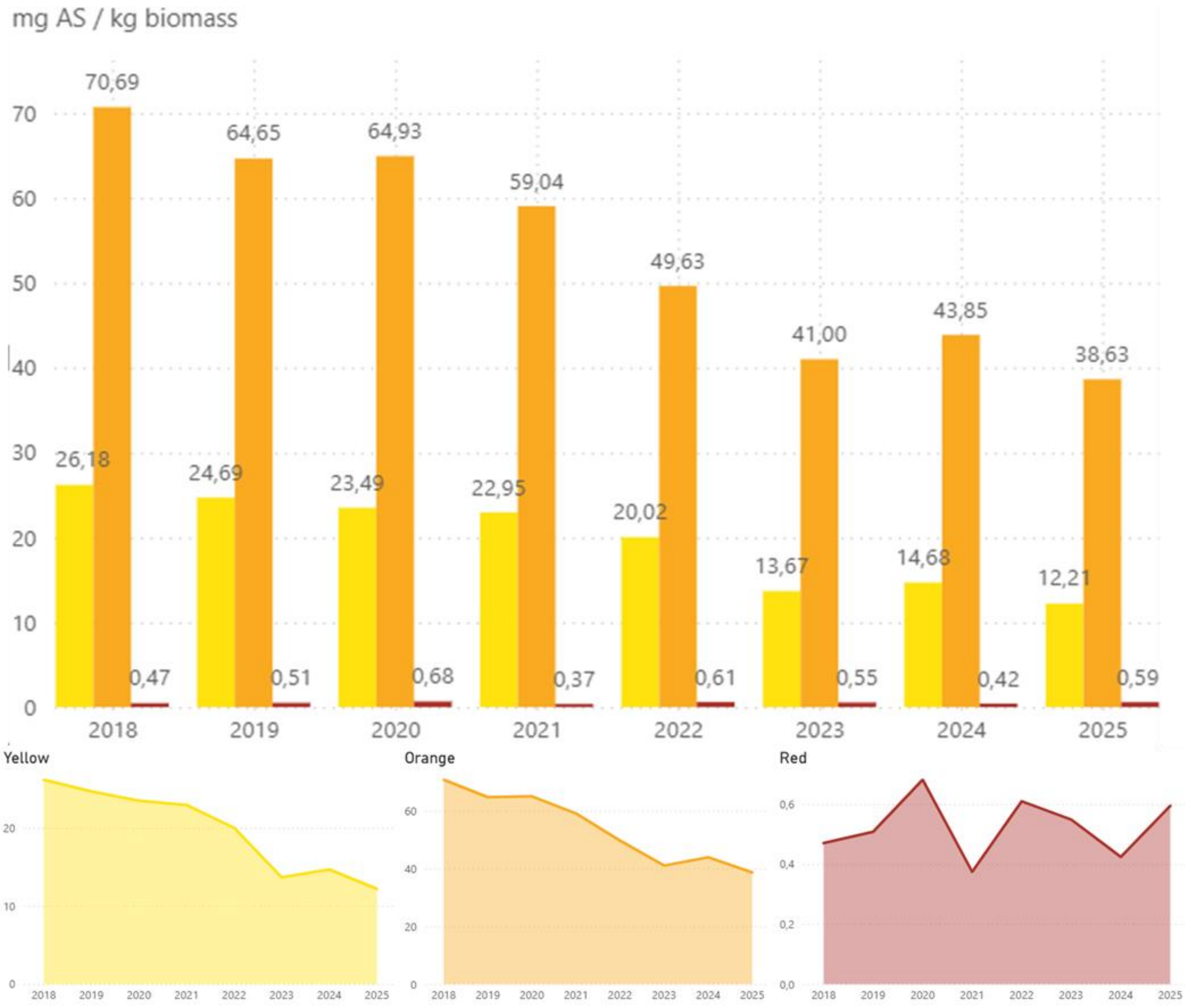


Figure 38. Evolution of the antibacterial sales (mg AS/kg biomass) per AMCRA colour code between 2018 and 2025. The top graph uses the same Y-axis, allowing comparing of the quantities used, while the lower graphs have different Y-axes, allowing for a better view on the respective evolutions.

Between 2024 and 2025, the sales of orange- and yellow-class molecules decreased with 16,82 % and 11,90 %, respectively. After the downward trend of the sales of red-class molecules resumed in 2023 and 2024, as mentioned, a strong increase is unfortunately noted (40,48 %). As a result, also the usage levels are once again approaching the highs recorded in 2020 and 2022.

It is important to note that in the graphs above, the 3rd and 4th generation cephalosporins for intramammary use are included in the orange-class molecules, as established in the AMCRA guidelines. The proportion of this application route in relation to the red-class molecules, and overall more details about the red-class molecules, are provided below.

Sales and use of VMPs with a red AMCRA colour code

a) Sales of VMPs with a red AMCRA colour code

Among the antibacterials classified under the red AMCRA code, quinolones contribute more significantly than 3rd and 4th generation cephalosporins (***Figure 39***). While sales of the latter remained stable over the past years (slightly decreasing), quinolone volumes fluctuated, with notable peaks in 2020 and 2022, and again in 2025. As illustrated in ***Figure 40***, these fluctuations are mainly driven by changes in flumequine sales. Indeed, in 2025 sales of flumequine (in mg/kg biomass) almost doubled compared to 2024.

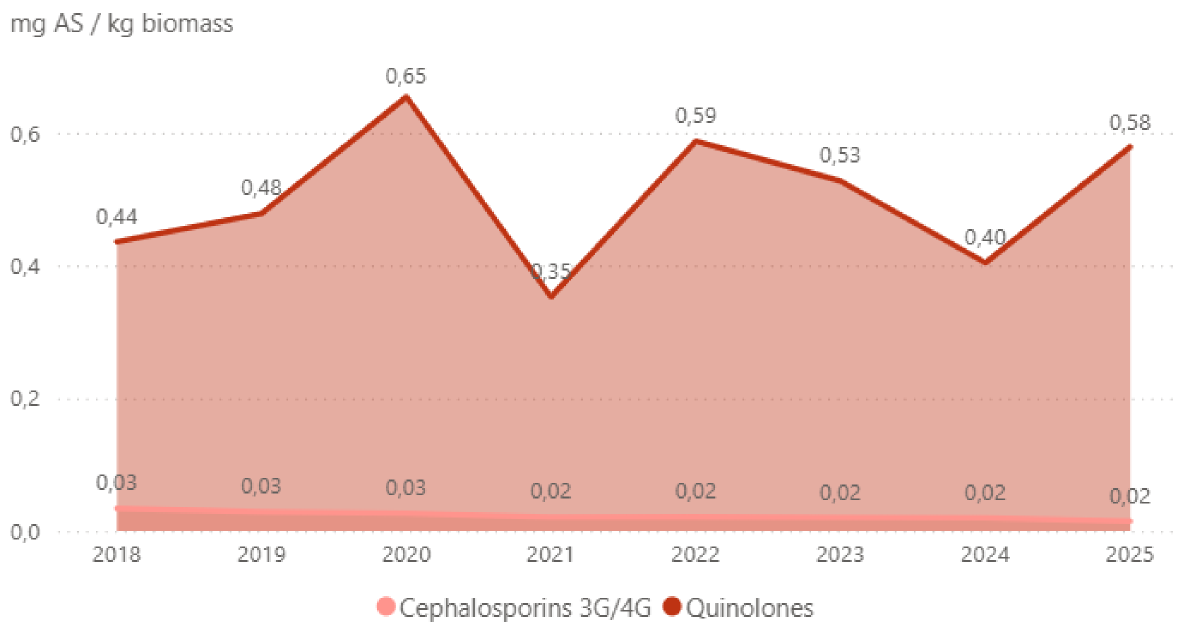


Figure 39. Evolution since 2018 of the sales (mg active substance/kg biomass) of the two antibacterial classes with a red AMCRA colour code, excluding the 3rd and 4th generation cephalosporins for intramammary use.

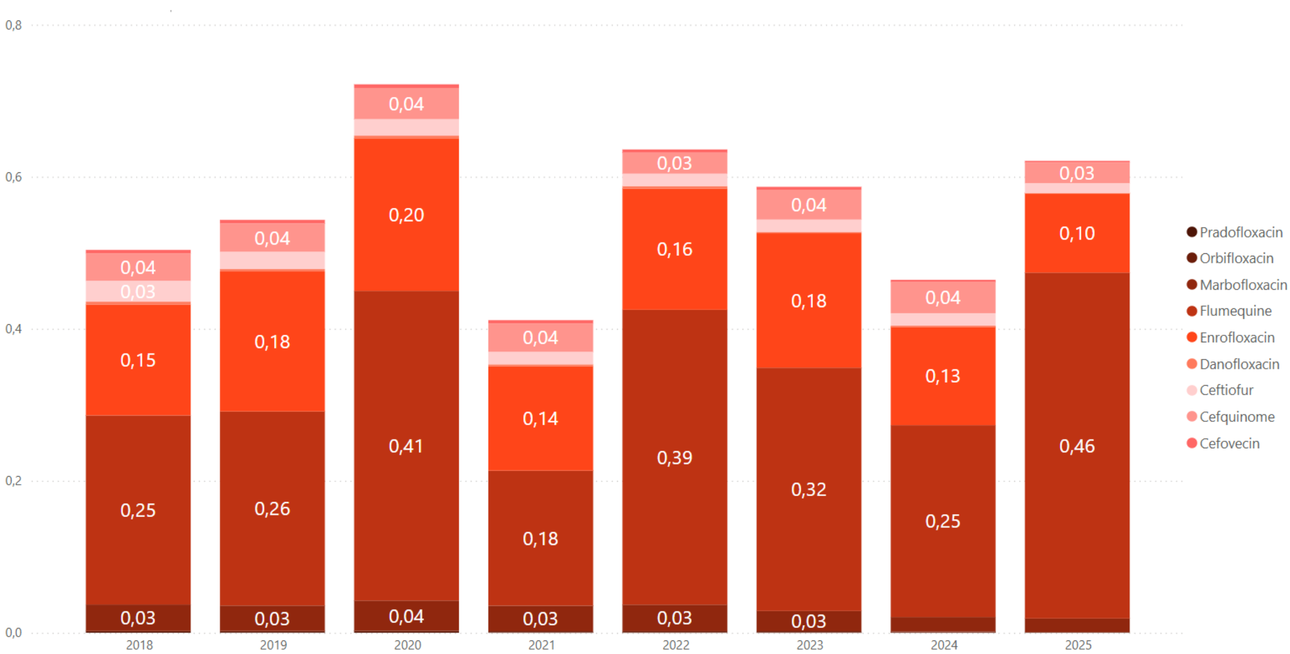


Figure 40. Evolution since 2018 of the sales (mg/kg biomass) of the active antibacterial substances with a red AMCRA colour code, excluding the 3rd and 4th generation cephalosporins for intramammary application.

b) Use of quinolones

The dynamics of the use of quinolones shed further light on the evolution of the sales data, yet require a multifaceted look and careful interpretation.

In absolute terms, the used quantity of quinolones increased in 2025, driven by an increase in broilers, as exemplified by the total treatment days in ***Figure 41***.

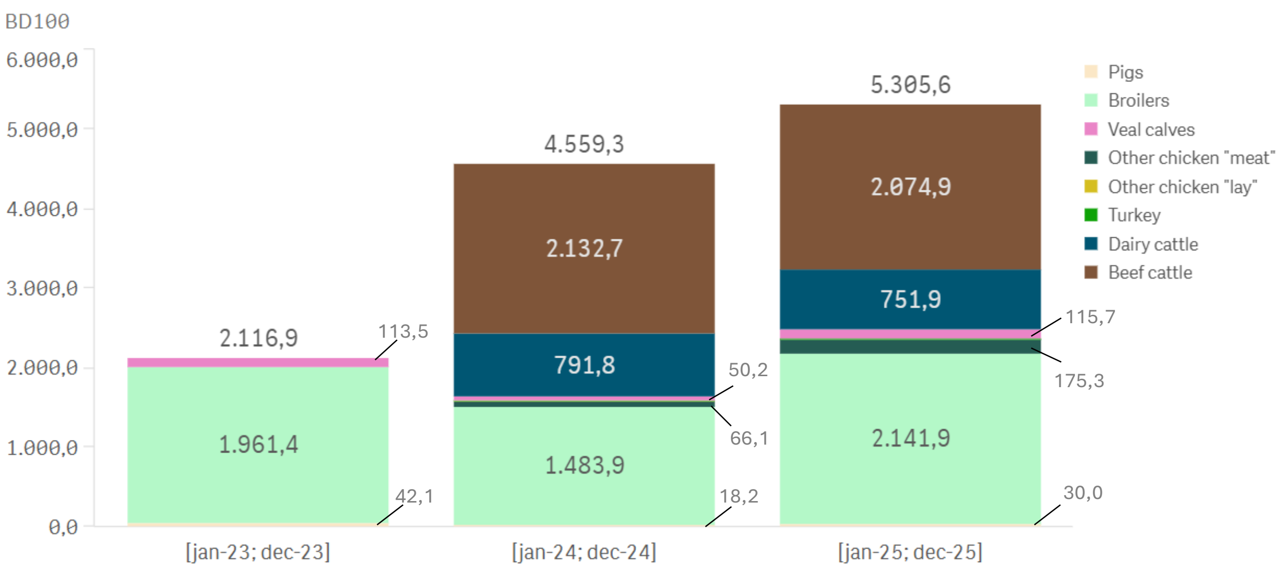


Figure 41. Total number of treatment days with (fluoro)quinolones per animal 'production type' from 2023 to 2025. Not indicated are the very low number of treatment days in turkeys and other 'laying type' chickens.

The total biomass broilers at risk expanded slightly in 2025, which could in theory lead to a (slightly) higher quantity used. The share of poultry farms using quinolones however also increased in 2025, further suggesting an actually higher use of quinolones in poultry (***Figure 42***). More detailed data (not shown) confirm that the observed increase in poultry farms in general is driven by the broilers (from 13,4 to 16,9 % of broiler farms).

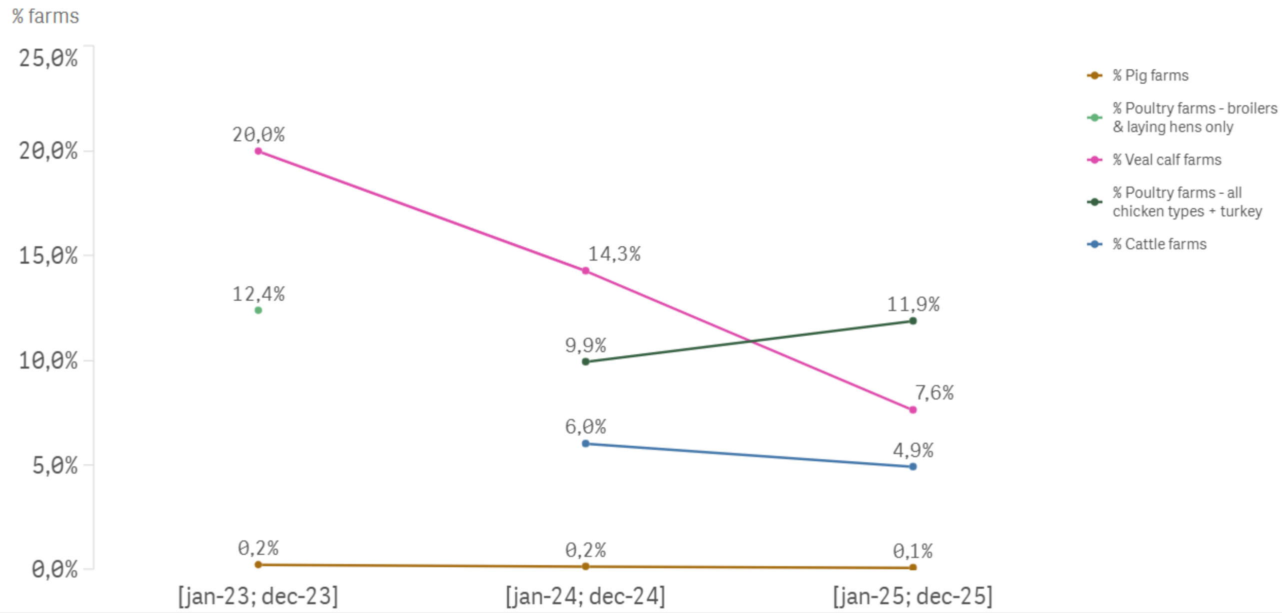


Figure 42. Percentage of farms with (fluoro)quinolone use from 2023 to 2025, per animal type.

The share of quinolones in the overall treatment days in broilers also increased in 2025 (***Figure 43***), as was the case for the other 'meat production' chicken types. Considering the overall use in broilers stayed relatively stable in 2025, these results illustrate that the importance of quinolones increased.

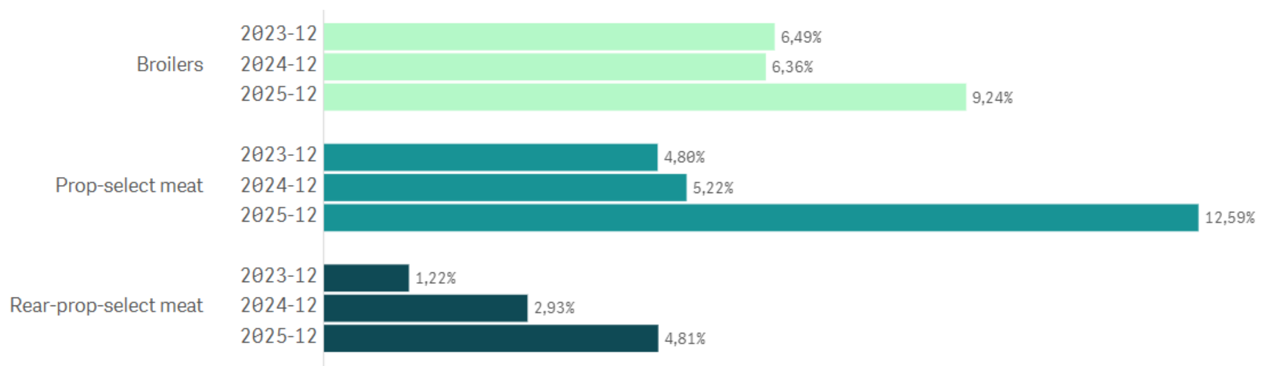


Figure 43. Share of treatment days with (fluoro)quinolones in the total treatment days in the 'meat production' chicken types, from 2023 to 2025.

At farm-level, the detailed evolution of the distribution of quinolone use in broilers confirms that it has been increasing (***Figure 44***), driven not by a few farms using a lot of quinolones but by an increasing number of farms with moderate use.

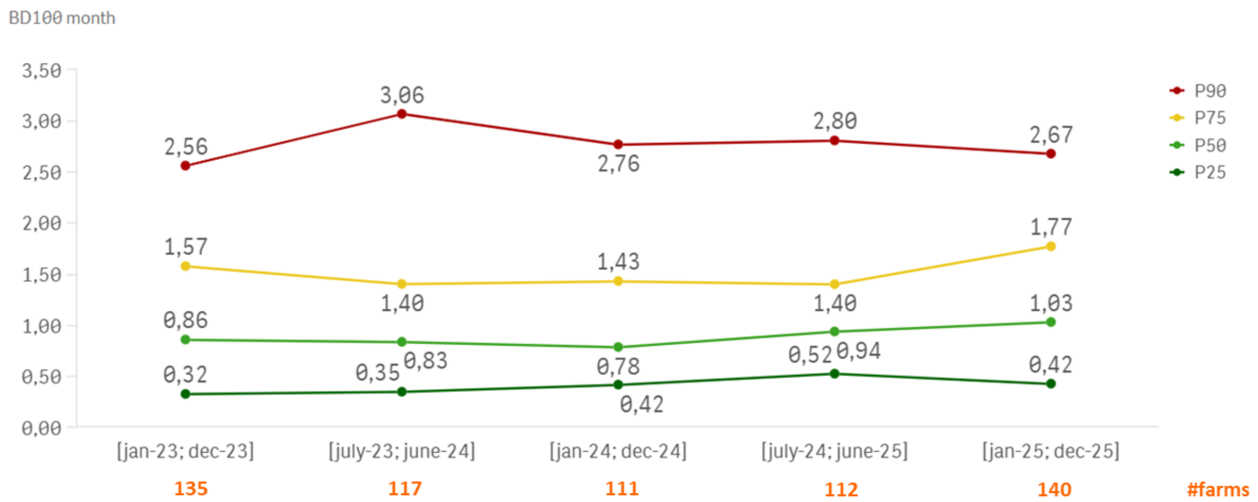


Figure 44. Distribution parameters of the farm-level BD_{100} specifically with (fluoro)quinolones in broilers from 2023 to 2025.

Overall, these results show that the promising decrease in quinolone use in poultry in 2024 did not persist, as 2025 marks a return to higher used quantities, in line with the increased sold quantity for 2025. The fact that over 1 in 10 broiler farms continues to have antibacterial resistance data supporting quinolone use, as stipulated by the Belgian federal law, should be stimulating urgent measures for finding and fighting the root cause. Instead, for over seven years, the same pattern of decreases and relapsing use lingers, now even leading to a record amount (670 kg, data not shown) used in broilers since the introduction of that legislation.

c) Use of 3rd and 4th generation cephalosporins

Cephalosporins of the 3rd and 4th generation only relevantly appear in the use data since 2024 and related to cattle (***Figure 45***), with the majority of the treatment days in dairy cattle, and more specifically, the adult animals (***Figure 46***).

Use of these active substances in said adult cattle is predominantly intramammary, in products classified with an orange AMCRA colour code instead of the red code for products with parenteral administration. As in 2024, this use was predominantly linked to the use during the drying-off period (see earlier). The use appears to be decreasing (***Figure 47***). However, as discussed earlier, there is a substantial gap in the quantities of sold and used intramammary tubes, leading to uncertainty regarding the accuracy of the use data.

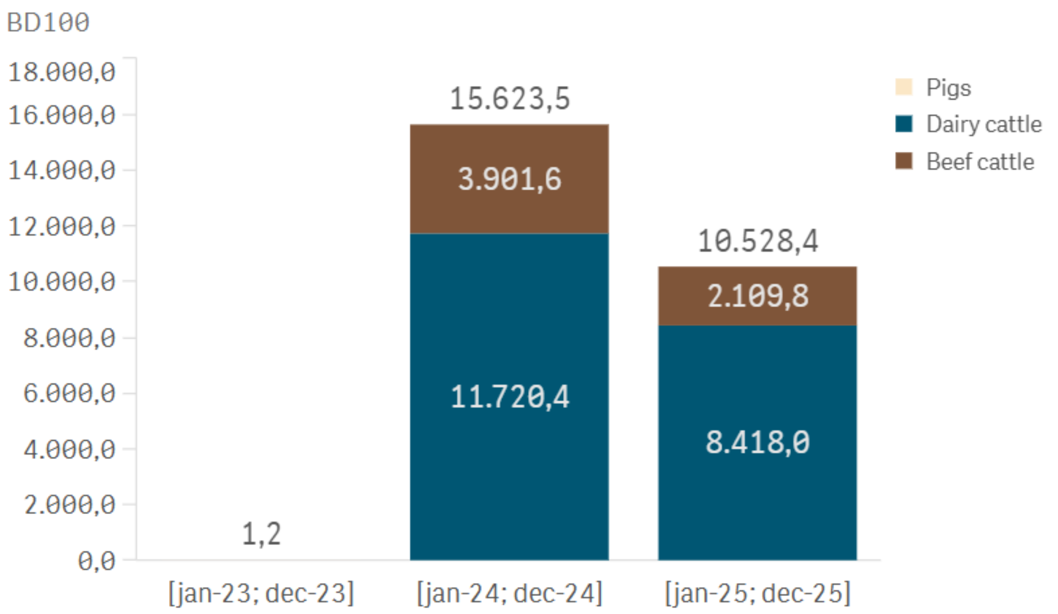


Figure 45. Number of treatment days with 3rd and 4th generation cephalosporins per animal 'production type' from 2023 to 2025.

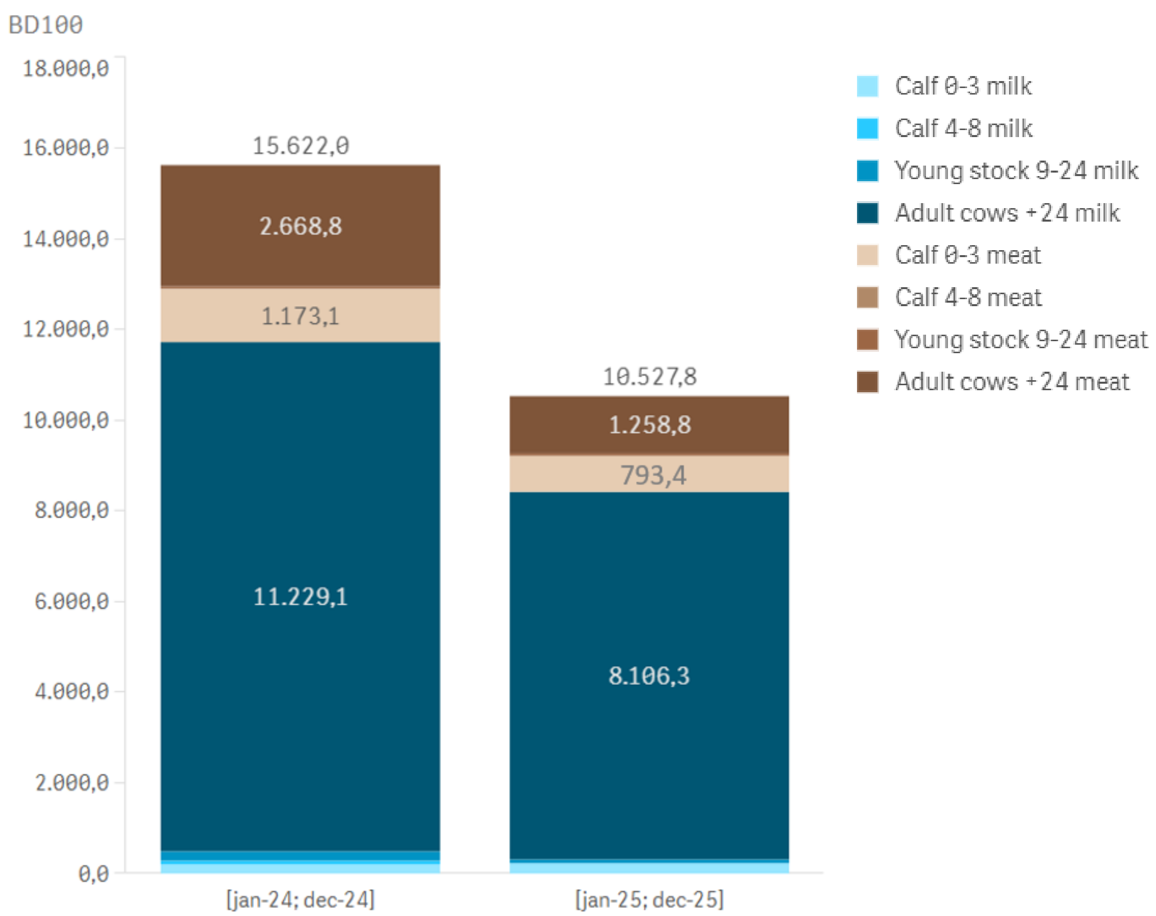


Figure 46. Number of treatment days with 3rd and 4th generation cephalosporins per cattle animal category from 2023 to 2025.

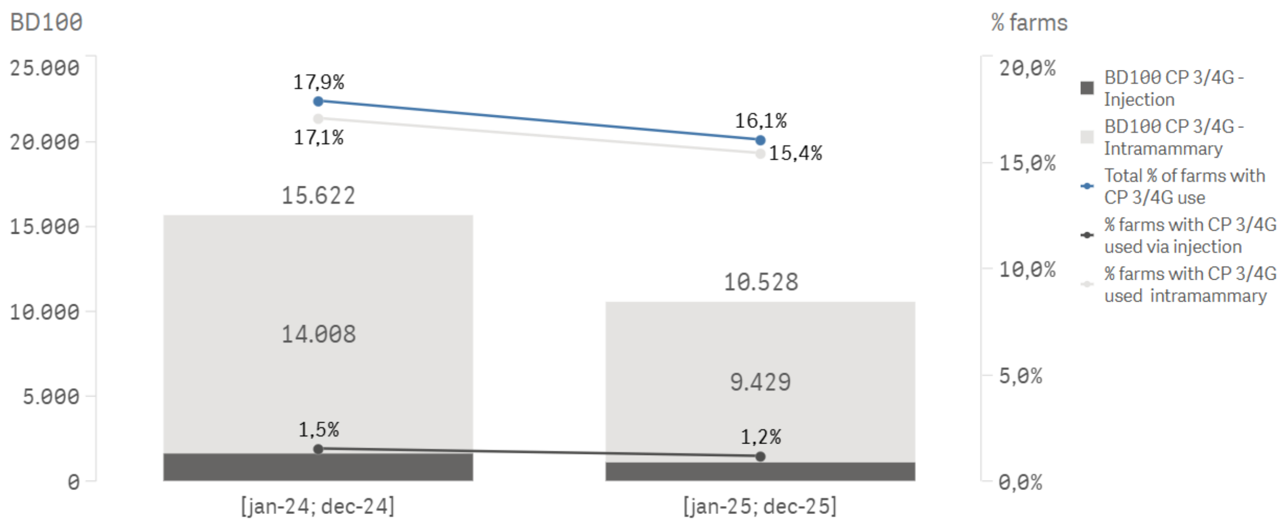


Figure 47. Number of treatment days with and percentage of farms using 3rd and 4th generation cephalosporins in cattle, according to route of administration, in 2024 and 2025.

Use of colistin

Colistin was labelled a CIA with the highest priority for public health by the WHO, but it retained its orange colour code in the AMCRA guidelines in agreement with the stakeholders involved in its veterinary use. As in the previous years, in 2025 the majority of the kg colistin used was in pigs (see ***Table 23***). The importance of pigs is also illustrated by the big share pigs take in the overall treatment days with colistin (***Figure 48***), furthermore showing the quantity used in pigs continued to decrease in 2025. Also the share of pig farms using colistin further decreased (***Figure 49***).

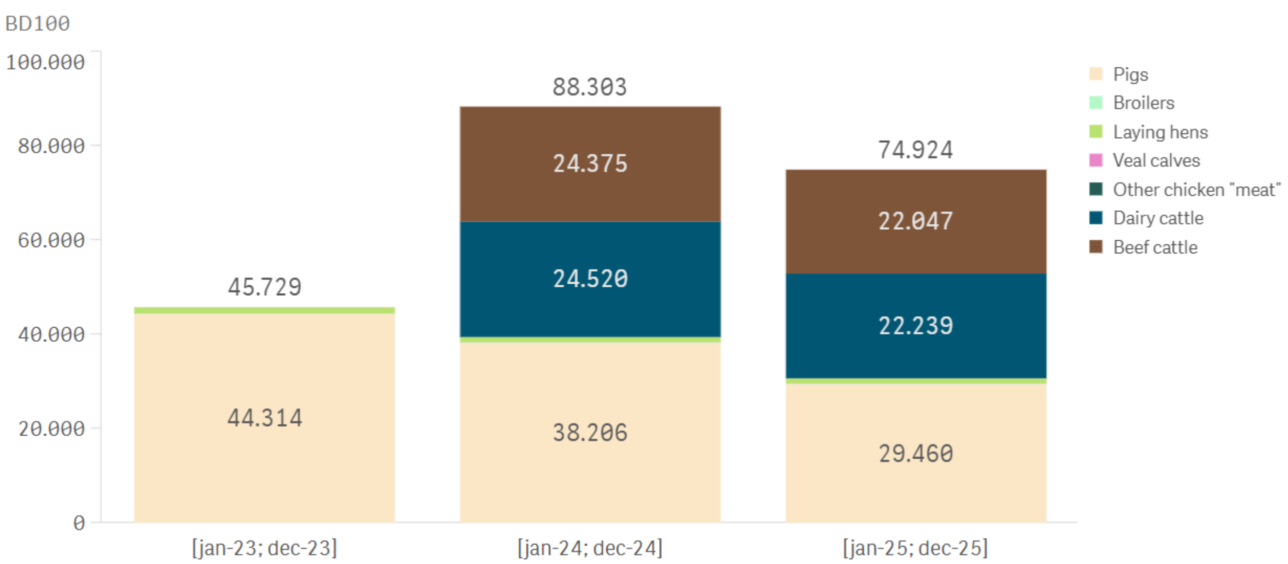


Figure 48. Total number of treatment days with colistin per animal 'production type' from 2023 to 2025.

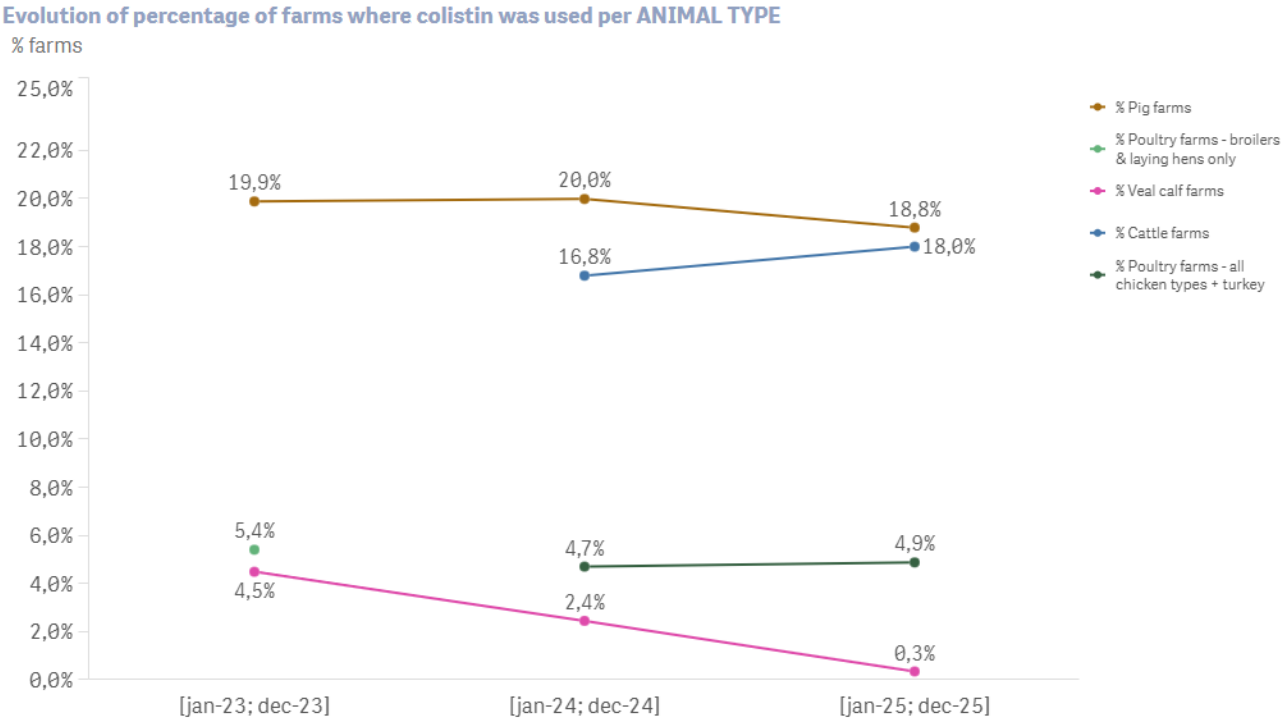


Figure 49. Percentage of farms with colistin use from 2023 to 2025, per animal type.

However, looking deeper into the most recent numbers of treatment days reveals that the highest number of treatment days is actually situated in cattle, and more specifically in the youngest calves (***Figure 50***). The share of cattle farms using colistin furthermore increased in 2025 (***Figure 49***).

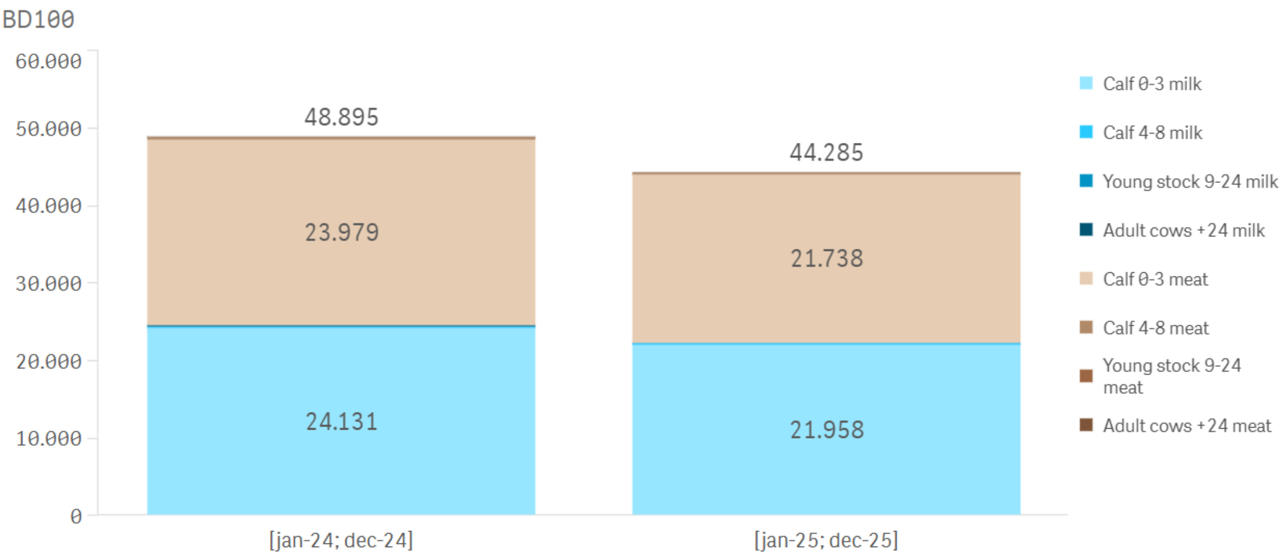


Figure 50. Number of treatment days with colistin per cattle category in 2024 and 2025.

In poultry, the use of colistin is mainly situated in the laying hens. In 2025, the total treatment days slightly decreased compared to 2024 (*Figure 51*). However, the relative importance of colistin use in laying hens increased to over 85 % (*Figure 52*).

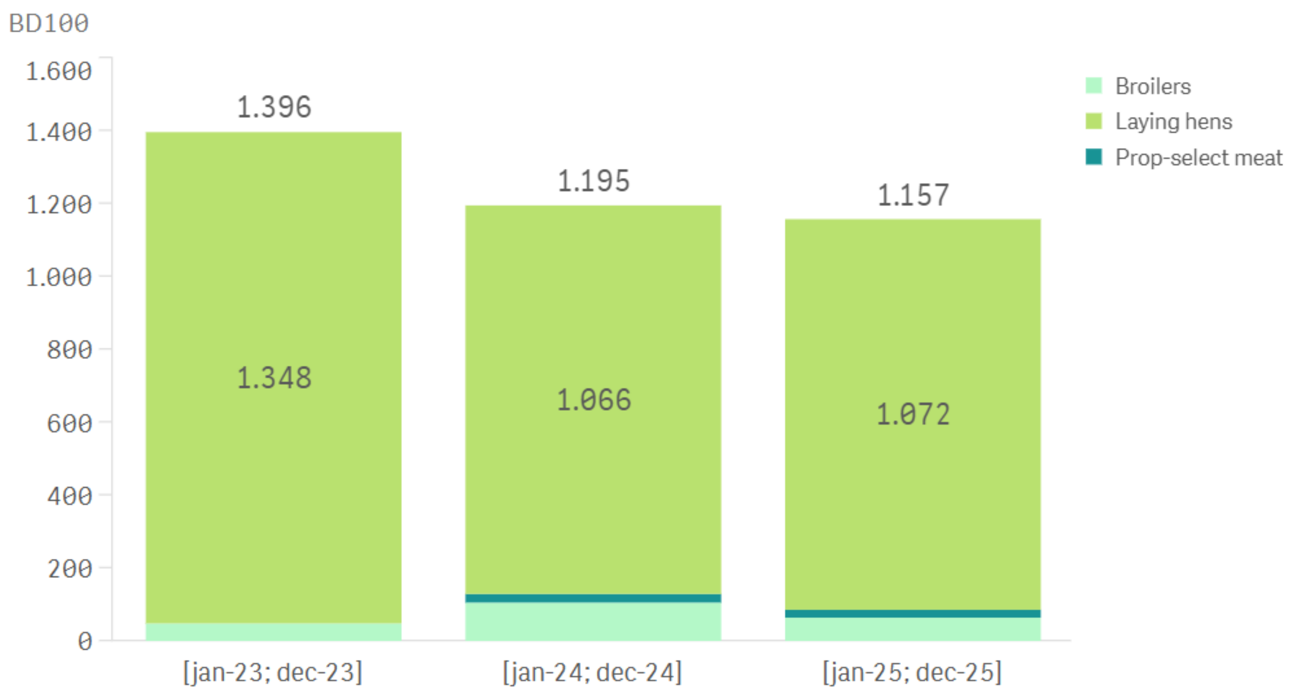


Figure 51. **Number of treatment days with colistin per poultry category from 2023 to 2025.**

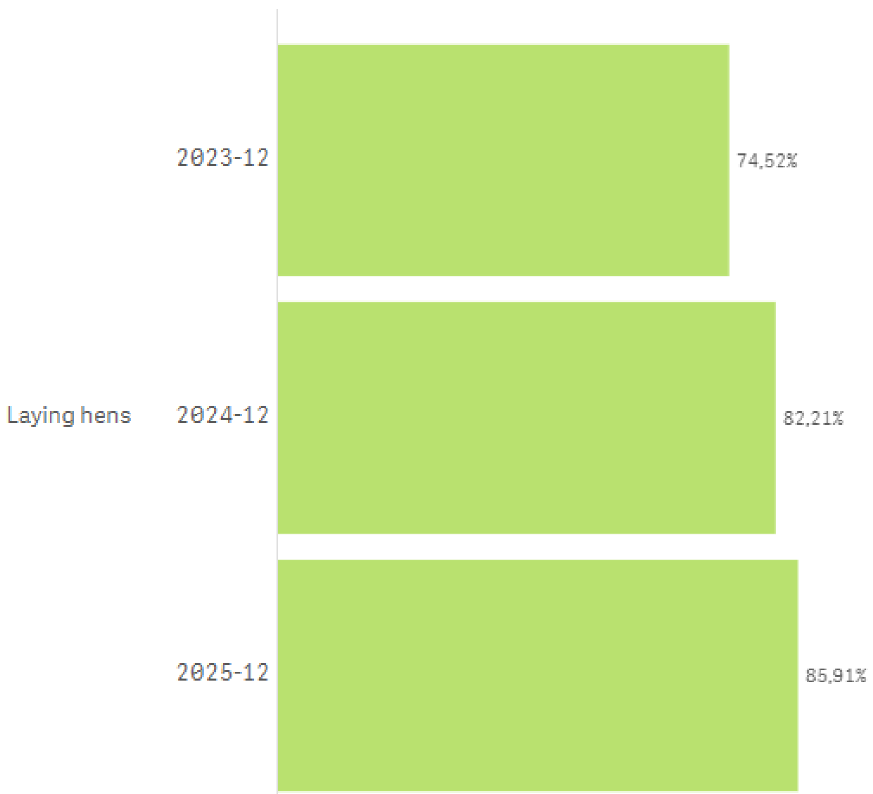


Figure 52. Share of treatment days with colistin in the total treatment days in laying hens from 2023 to 2025.

THE 2025 RESULTS IN LIGHT OF THE REDUCTION TARGETS

This BelVet-SAC report plays a key role in shaping the Belgian policy on antimicrobial sales and use in animals. This policy is built around reduction targets. The current targets, stemming from the AMCRA Vision 2030[6] and incorporated in the Belgian "One Health" National Action Plan on the fight against AMR 2026-2030[7], are set until the end of 2030.

In general, it must be noted that even though the national targets refer to the 'use' of antibacterials, the indicator by which this is monitored in Belgium relies on the sales data, because the available use data in Belgium currently only cover the pigs, poultry (chicken and turkey), veal calves, and dairy and beef cattle, whereas the sales data capture the overall sales with no distinction between species.

There are four targets at national level:

1. A maximal antibacterial use of 42 mg/kg biomass or a reduction of 70 % compared to the reference year 2011, by the end of 2030.
2. The production of medicated feed with antibacterial VMPs is stopped by the end of 2026.
3. A reduction of 90 % compared to 2011 in the use of CIAs (quinolones and 3rd and 4th generation cephalosporins).
4. The sales of polymyxins remain below 1 mg/PCU until the end of 2030.

A fifth target is situated at species level: for food-producing animals there ought to be species-specific targets in the form of animal category-specific target BD_{100}-threshold values and the goal of limiting the proportion of alarm users to a maximum of 1 %.

Below, the 2025 results are assessed in relation to these five targets.

Target 1: A maximum sale of antibacterials of 42 mg active substance per kg biomass by the end of 2030

a) Evolution in antibacterial sales (mg/kg biomass) since the reference year 2011

Between 2022 and 2023, the total amount of antibacterials sold per kg biomass dropped by 21,4 %, extending the downward trend observed over the past 12 years. Unfortunately, this progress was interrupted in 2024, when the sales increased once again. Fortunately, the total cumulative reduction in 2025 decreased again, virtually achieving the **65 %** reduction target set for 2024 and on track again to achieve the 2030 target to reduce 70 % compared to the reference year 2011 (***Figure 53***).

[6] https://www.amcra.be/nl/visie-2030/

[7] https://www.health.belgium.be/en/organisation-policy/legislation-policy-documents/one-health-national-action-plan-fight-against-antimicrobial-resistance-2026-2030

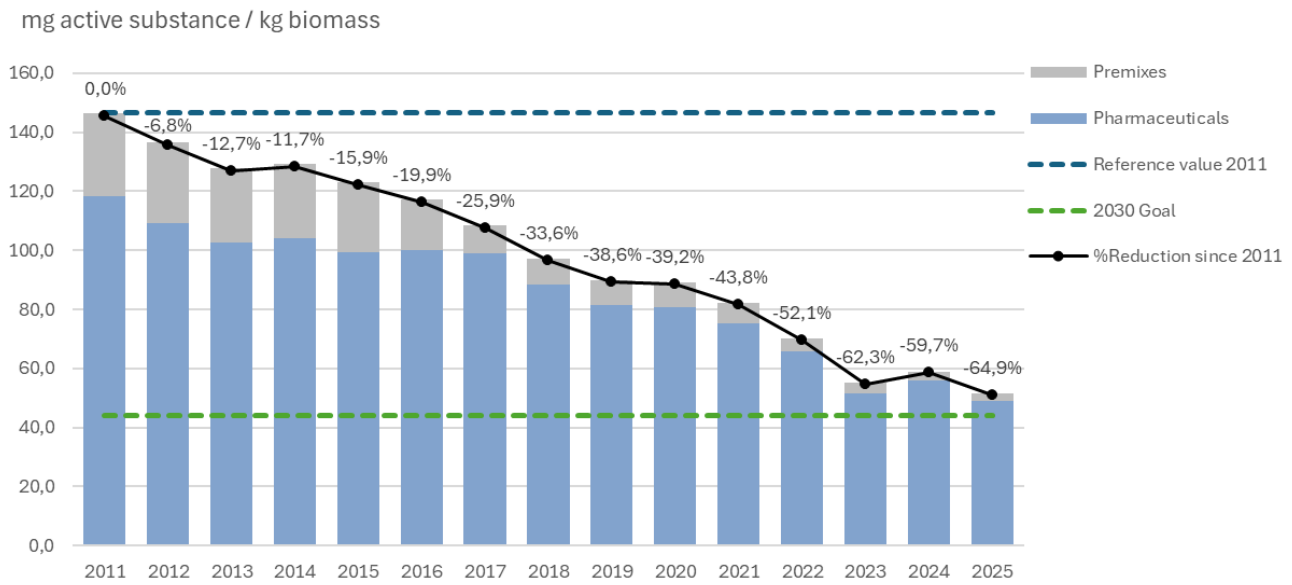


Figure 53. Year-to-year results of total antibacterial VMP sales (mg active substance/kg biomass) with 2011 as a reference year.

b) Positioning of Belgium in comparison to the other EU member states

The baseline for the first national target on antibacterial use is defined by the aim to achieve the median European antibacterial use. These data are available in the European Surveillance of Veterinary Antibacterial Consumption (ESVAC) reports: between 2009 and 2022 the EMA ran the ESVAC project that collected the antibacterial sales data in EU Member States on a voluntary basis, in a comparable manner, allowing to evaluate trends and to compare sales within and between countries. Voluntary participation in the ESVAC project increased from 9 to 31 reporting countries over the years. The data that were collected in Belgium and presented in the previous BelVet-SAC reports were also collected in the framework of this EU-wide ESVAC data collection effort.

As of January 2024, all European Union (EU) / European Economic Area (EEA) Member States have to report the volume of sales and use of antimicrobial medicinal products in animals via EMA's Antimicrobial Sales and Use Platform (ASU)[8], in line with the Veterinary Medicinal Products Regulation[9]. This new report is called the European Sales and Use of Antimicrobials for Veterinary Medicine (ESUAvet[10]) annual surveillance report.

In 2025, the 1st ESUAvet report was published, presenting the annual surveillance report for 2023 with data on the volume of sales and use of antimicrobial VMPs under this legal framework coming from 29 EU countries, including Iceland and Norway[11]. It was the first time that use data were reported. The use

[8] https://www.ema.europa.eu/en/veterinary-regulatory-overview/antimicrobial-resistance-veterinary-medicine/antimicrobial-sales-use-platform

[9] https://www.ema.europa.eu/en/veterinary-regulatory-overview/veterinary-medicinal-products-regulation

[10] https://www.ema.europa.eu/en/veterinary-regulatory-overview/antimicrobial-resistance-veterinary-medicine/european-sales-use-antimicrobials-veterinary-medicine-esuavet-annual-surveillance-reports

[11] https://www.ema.europa.eu/en/documents/report/european-sales-use-antimicrobials-veterinary-medicine-annual-surveillance-report-2023_en.pdf

data distinguished between cattle, pigs, chickens and turkeys, marking a significant step towards obtaining more granular information on antimicrobial consumption by species. In this report the antibacterial consumption in animals up to 2022 is presented in relation to the animal production in the country (PCU). The latter is comparable to the biomass used in the national mg/kg biomass indicators, but it also includes horses and food producing rabbits and corrects more thoroughly for import and export.

Figure 54 presents the 2024 data for 29 EU countries, and even though the 2024 data show an increase, Belgium made steady progress in previous years. However, other countries have also implemented measures leading to considerable decreases in veterinary antibacterial consumption, leading to a reduction in the EU median. This context is essential when interpreting the Belgian results: in the broader European context, it is not a unique performance, and as we are striving to reach the middle of the 'pack' we cannot afford to 'sit back and relax'.

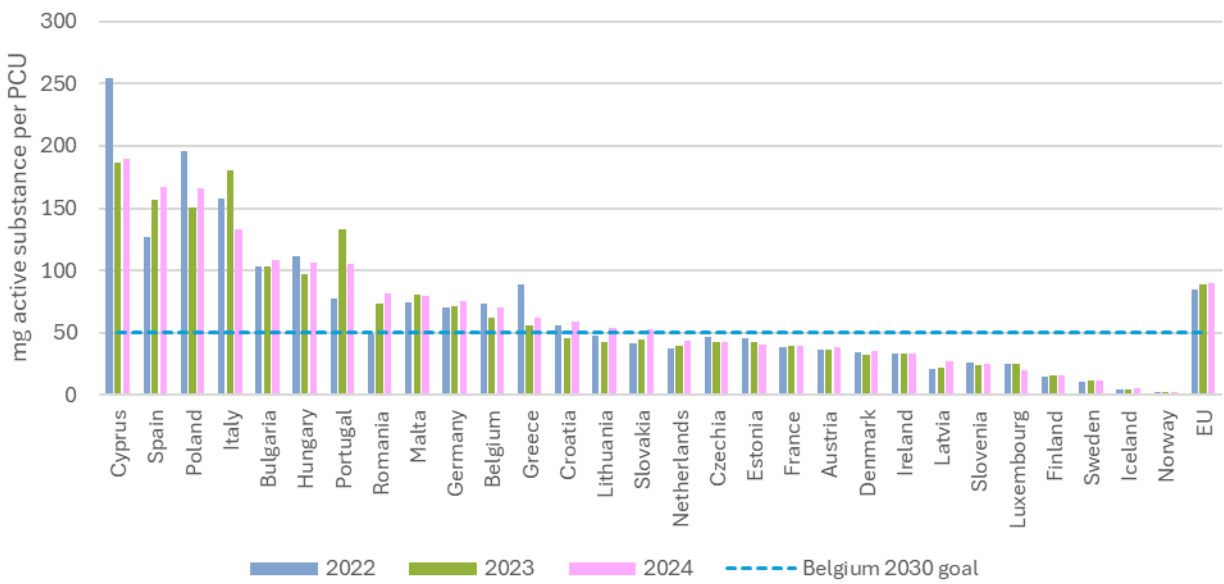


Figure 54. EU countries progress in reducing antimicrobial sales (mg/PCU) for farmed animals and aquaculture from 2022 to 2024 (source: 2nd annual surveillance report for 2024 from ESUAvet on European sales and use of antimicrobials for veterinary medicine[12].)

Compared to countries with a comparable PCU composition as Belgium and a relatively comparable structure of livestock farming (Austria, Germany, the Netherlands, Spain), the use in Belgium is positioned in the middle: higher than in the Netherlands and Austria, but lower than in Spain and Germany (*Figure 55*).

[12] https://www.ema.europa.eu/en/documents/report/european-sales-use-antimicrobials-veterinary-medicine-annual-surveillance-report-2024_en.pdf

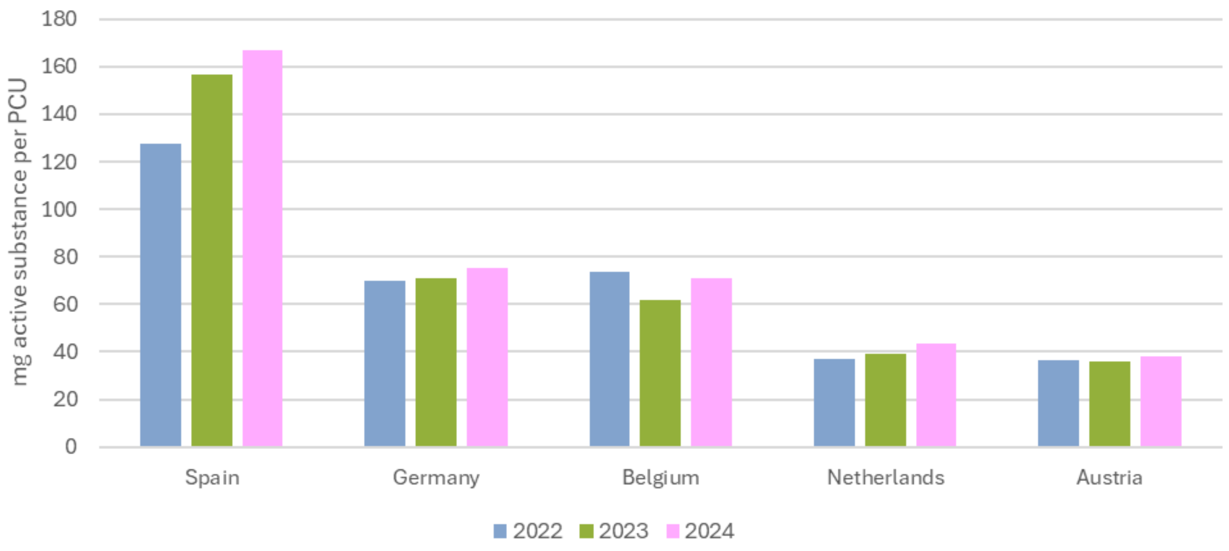


Figure 55. Overall sales of antibacterials in mg/PCU in 2022-2024 (source: 2nd annual surveillance report for 2024 from ESUAvet on European sales and use of antimicrobials for veterinary medicine[12]) for Belgium and countries with a comparable PCU composition.

Target 2: The production of medicated feed with antibacterial VMPs is stopped by the end of 2026

As mentioned earlier, the 2025 sales of antibacterial premixes further dropped with 21,6 %, resulting in a cumulative reduction of 91,4 % compared to the reference year 2011 (***Figure 56***). This means that its position relative to the target is further strengthened.

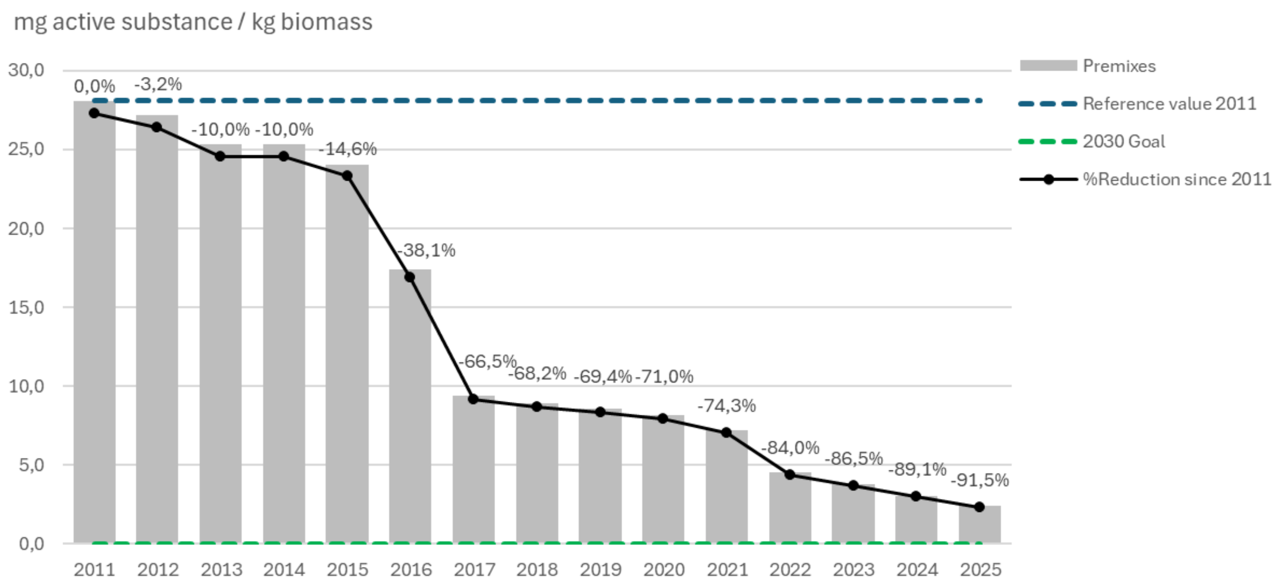


Figure 56. Evolution of antibacterial premix sales (mg active substance/kg biomass) until 2025.

This is a very nice achievement, thanks to the coordinated efforts of the sector of the MMF and the veterinarians, even more so since the amount of pharmaceuticals also decreased in 2025. It is praiseworthy that the sector of the MMF has set the target to completely phase out the production of antibacterial medicated feed by the end of 2026.

Target 3: A reduction of 90 % compared to 2011 in the sales of CIAs (quinolones and 3rd and 4th generation cephalosporins)

It was already noted that, while sales of 3rd and 4th generation cephalosporins have decreased in 2025, the sales of quinolones increased dramatically with 44 %. *Figure 57* illustrates that after the good results of 2024, the values hover once again around the 75 % reduction threshold that was set for 2024 and action is needed to press on and get back on the right track to further reduce the use of CIAs of 90 % compared to 2011 by 2030.

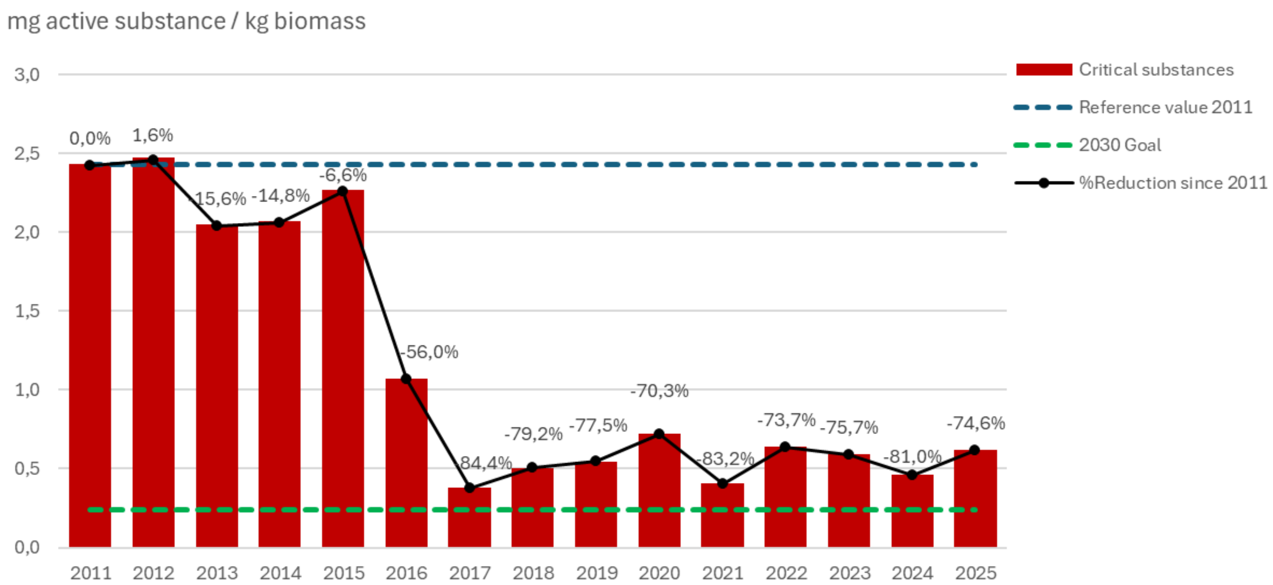


Figure 57. Evolution of the sales of CIAs (quinolones and 3rd and 4th generation cephalosporines) in mg active substance/kg biomass since the reference year 2011.

Target 4: The sales of polymyxins remain below 1 mg/PCU until the end of 2030

In Chapter III.3 it was already mentioned that the polymyxin sales have decreased from 0,69 mg/kg biomass in 2024 to 0,63 mg/kg biomass in 2025. With this slight decrease noted in 2025, the target for 2030 remains safe. *Figure 58* presents the evolution in colistin sales (mg/kg biomass) since 2012.

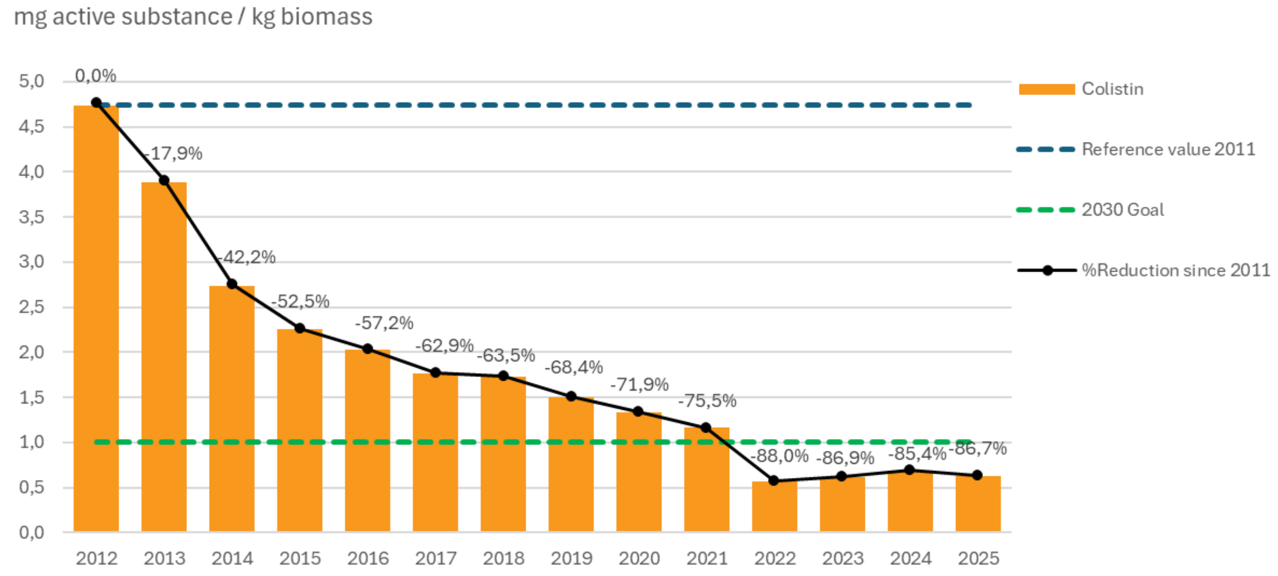


Figure 58. Evolution of colistin sales (mg active substance/kg biomass) and current progress regarding the 2025 reduction target of 1 mg colistin/kg biomass.

The lower dotted line represents the 2030 goal of 1 mg/kg biomass. Note that the target of 1 mg/PCU is loosely translated into a target of 1 mg/kg biomass, as achieving the latter will surely lead to achieving the former because the PCU denominator is typically bigger than the kg biomass denominator.

Target 5: Species-specific threshold values at farm-level and limit of 1 % 'alarm users' by 2030

In 2020, benchmark threshold values (BD_{100}) were defined for each pig category, for broilers and for veal calves, in close cooperation with the sector stakeholders. These values were integrated in 'reduction paths', with progressively decreasing thresholds (see ***Figures 18-24***). This ensured that, from the beginning, the threshold values for low users (green zone), intermediate users (yellow zone), and high users (red zone) were clearly defined for the entire period from 2021 to the end of 2024. The last threshold values have been maintained since then, pending revised reduction paths to be agreed upon in the scope of the new 'Antibiotic covenant'.

In addition to the reduction paths, the concept of 'alarm use' was introduced to identify farms with persistent high antibacterial use. This category includes farms that have remained in the red zone for two consecutive years – unless they achieved a reduction in the most recent year of at least 20% compared to the action threshold – or that have repeatedly fallen in the red zone in the past three years. As such, the alarm users form a subset of the farms with a red benchmark colour score and are assigned a purple colour score to indicate the most urgent need to take action.

Figure 59 summarises the percentage of farms, including zero-registration farms, with each benchmark colour score, based on the 2025 farm-level use results for the species involved, as well as for the pig categories separately. As noted earlier, pig farms with multiple pig categories receive a colour score based on their worst-scoring category.

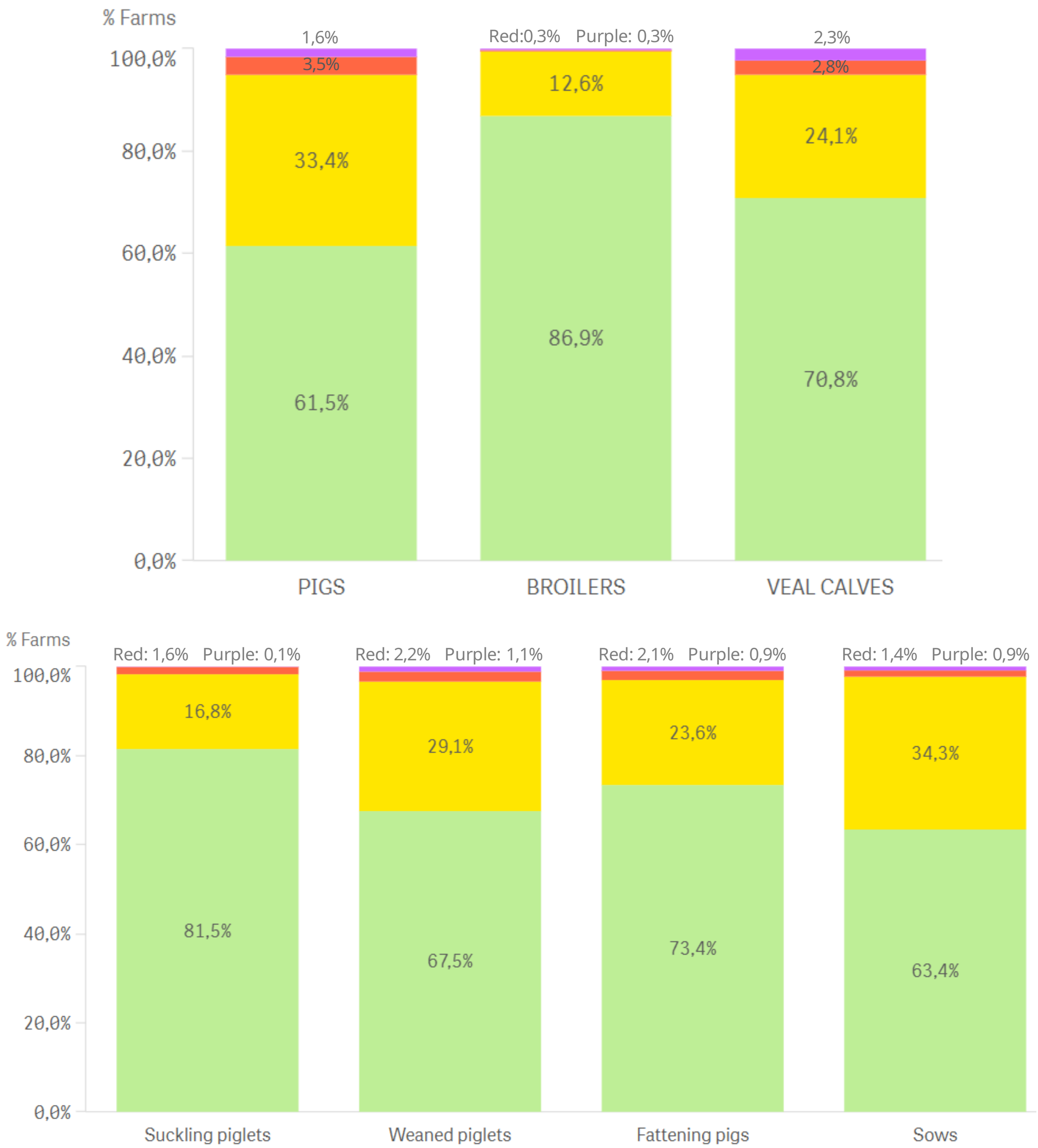


Figure 59. Distribution of the percentage of farms* in the different benchmarking colour zones for pigs, broilers and veal calves and separately for the pig categories, in 2025. ** Including zero-registration farms.*

In 2025, pigs had, overall, 1,6 % farms with alarm use, closing in on the target of 1 % alarm users. Remarkably, in the separate pig categories, that target was achieved in virtually all categories, only very slightly exceeding it in weaned piglets. That is a substantial improvement compared to 2024, where overall still 2,6 % of farms were labelled as alarm users and the target was exceeded in weaned piglets and fattening pigs. Also in veal calves, the target came closer to hand, coming from 3,7 % of alarm users in 2024 to 2,3 % in 2025. The broilers maintained the target, which was already achieved in 2021.

It should be noted that these outcomes do not solely reflect the actual use levels; they are also influence by the evolution of the threshold BD_{100}-values that frame the antibacterial-use policy at the farm level. In this light, it is important to note that there were no adjustments to the threshold values for any category since the end of 2024.

DISCUSSION

This annual BelVet-SAC report, now in its 17th edition, provides a comprehensive overview of the 'sales' and 'use' of antibacterial VMPs in Belgium in 2025 and their evolution over the years.

In Belgium, the BelVet-SAC report is the cornerstone of the policy on the use of antibacterials in veterinary medicine in order to reduce AMR. It provides authorities, veterinary and agricultural sector partners and other stakeholders with the data on sales and use of antibiotics, needed to establish and evaluate reduction targets. In that respect, 2025 was a transition year. Even though the AMCRA Vision 2030 was published mid-2024, setting new targets towards 2030, the Third Veterinary Antibiotic Covenant and Belgium's second National 'One Health' Action Plan against AMR were not yet finalized and validated.

Notably, in 2025 the new Royal Decree published on December 17, 2024 was applied for the first time. Accordingly, farmers of the pig, broiler, laying hen and veal calf sectors received an 'antibiotics-farm statute', the so-called 'AB-bedrijfsstatuut' or 'AB-statut d'exploitation' (with respect to the year 2024). That statute is determined by the farmer's benchmark colour score, which reflects their antibacterial use in relation to the BD_{100}-threshold values that define their respective reduction paths. Only farmers with a 'green' statute are exempt from legal consequences, whereas 'yellow' and 'red' statutes require corrective actions, such as hiring an antibiotic-reduction coach (AR-coach).

Meanwhile, efforts were ongoing by veterinarians, data collection system managers, software providers and other stakeholders, to improve the existing data collection and quality, as well as to prepare for the extension of the data collection to all food-producing animals, in order to comply with EU delegating act 2019/6 and implementing act 2022/209. Furthermore, from an epidemiological point-of-view, in the first months of 2025 the bovine sector continued to deal with the fall-out of the bluetongue crisis.

It was against this challenging background that the different sectors and various stakeholders needed to maintain the efforts to reduce and optimise the antibacterial use in animals. The largely positive results for 2025 should be an encouraging reward for all that work.

1. Results in relation to the 2024/2030 reduction targets

Between 2011 and 2025, sales of antibacterials **decreased by 64,9 % mg/kg biomass**. This means the national reduction target of 65 % for total sales of antibacterials for use in animals in Belgium, set for 2024, was practically achieved, albeit with a one-year delay. The result also represents a new major step towards the 2030 reduction target of 70 %.

Unlike last year, the sales of the antibacterial pharmaceuticals decreased in 2025, with almost 12 % compared to 2024, reaching the lowest ever level of 49,1 mg/kg. Sales of antibacterial premixes continued their declining trend, dropping with 21 %. Evidently, the target for antibacterial premixes set by the medicated feed sector – to cease all production of antibacterial-medicated feed by the end of 2026 – became even closer at hand. With the **total reduction of antibacterial-medicated feed sales reaching 91,4 % in 2025**, only a final big step remains: reducing 2,4 mg/kg, or 8,6 %, compared to the 28,1 mg/kg recorded in 2011, in the current year.

If worse years should not be viewed overly bad, better years should also be approached with modesty. Indeed, as it was mentioned last year that the expectation is that the road to reduction might, at this point, become more 'bumpy' instead of straight downhill, the good result of 2025 should not lead to euphoria. It remains essential to always regard the sales data alongside the use data, as these ultimately reflect the actual accomplishments in the field better. Fortunately, the use results were also largely positive (see also next sections). The **target of a maximum of 1 % alarm users was (virtually) achieved in all but one animal category**, with still 2,6 % of veal calf farms appearing to be long-term or repeated high users. With the additional attention granted in that sector towards mitigating the users in the red benchmark colour zone, it seems to be a matter of time before the target is reached there as well. However, in all sectors, tightened reduction paths are expected to become operational in the coming years, meaning that more farms may again fall into the red benchmark colour zone and the percentage of alarm users might increase again. The best way to anticipate this is to strengthen the position of the farms now, by continuing to work towards structural improvements on the farms with the highest use, e.g. through implementation of infection prevention control measures and guarding the health situation on farms that are currently deemed safe.

The most disappointing and concerning result of 2025 is the dramatic increase in the use of quinolones, causing the **2025 CIA sales result (- 74,1 %) to breach the old target of a 75 % reduction, while the target set for 2030 is even more ambitious at 90 %**. Hence, the 2025 result is heading in the wrong direction. The exceptionality of this result is underscored by the fact that it is only the third time in the nine years since the law restricting the use of CIA's in food-producing animals came into force – and the first time since its scope was expanded to all animals in 2023. Thanks to the insights available through the use results, it is clear that the reason for this increase is the use of flumequine in broilers. The sector appears unable to resolve the root cause(s) for quinolone use since in a relatively small, varying section of broiler farms (evolving around 10 %), its use appears necessary. Overall, use of quinolones accounted for almost one out of ten treatment days in broilers in 2025. The continued hovering of this result should be urgently and seriously addressed by all stakeholders involved, and a credible action plan should be drafted to structurally tackle the problem(s). However, the insights via the use data also identify cattle, and especially beef cattle, as a sector with an important number of treatment days with quinolones, which is much less apparent in the sales results. The cattle sector should likewise recognise how exceptional the use of quinolones ought to be. These results will continue to be closely monitored in the coming years.

Fortunately, more positive results were achieved concerning the use of colistin, **upholding the sales result of polymyxins below the defined threshold of 1 mg/kg biomass, amounting to 0,63 mg/kg biomass in 2025**.

In anticipation of the new 2030 targets becoming the new reality, these results demonstrate that targets primarily serve as a tool for creating an operational framework for sustainable and responsible reductions, rather than an end in themselves. Once the field is set in motion, the commitment to reduction can deliver results, independently of the targets. It must at the same time be stressed that **animal welfare remains important and that continued focus on disease-prevention and -control measures is essential**. This is visible in the quinolone results: more than suggesting that the target is too ambitious, the hovering of the results around the (old, 2024) target illustrates that the will to find and eliminate the root causes for quinolone use is lacking. These are vital lessons for future discussions concerning the policy for use of antibacterials in animals.

2. Overall assessment of the national sales and use of antibacterial VMPs

In 2025, a total quantity of 102,5 tonnes antibacterial active substances was sold in Belgium, the lowest total level ever reported. This amount was comprised of 97,7 tonnes antibacterial pharmaceuticals and 4,8 tonnes antibacterial premixes. The latter also is a record low, while the former approaches the quantity of antibacterial pharmaceuticals sold in 2023. However, the animal biomass was considerably higher in 2025 than in 2023, explaining that the final outcome of **51,5 mg/kg biomass of sold antibacterial VMPs in Belgium in 2025 is the best result obtained so far**, representing a 12,3 % decrease compared to the 58,7 mg/kg biomass in 2024 and a 6,7 % decrease compared to the 55,2 mg/kg biomass recorded in 2023.

Using these results for policy-making requires a solid understanding of the data and a careful assessment of their quality. Interpreting the difference between 'sales' and 'use' figures remains as challenging as ever. In 2025, the gap narrowed again, suggesting that the usual factors causing year-to-year variation are at play again – although these factors, and their individual impact, have never been fully identified. On the sales side, for example, abroad purchases or sales of antibacterials cannot be quantified yet. On the 'use' side, various field stakeholders , assume that a considerable share of data (between 10 and 40 % of actual use) is not registered in the bovine sector. Yet this estimate is difficult to validate, as is determining its impact in tonnes used or treatment days. Clearly, a further expansion of the use data collection should bring further enlightenment, but only if veterinarians register data rigorously – and within the required deadlines – since data quality can only be guaranteed when registrations are both timely and correct. High-quality data are indispensable: without them, neither the interpretation of results nor the policies derived from those results can rest on a solid foundation.

It is also clear that including the remaining food-producing animals – combined with the introduction of the new VAMREG data-collection system – will fundamentally change the face of the use data collection. Awareness-raising and support are advisable, and ample controls might be required. Crucially, these efforts are meant to be carried out by all stakeholders, sharing responsibility in ensuring that the collection, processing, analysis, and reporting of these new data can be managed effectively, even though this will require significant time and resources.

3. Antibacterial use in pigs

The overall use in pigs, as quantified with the **BD_{100}-species, further decreased in 2025 with an impressive 15,9 % compared to 2024**, totalling the reduction in that sector at **56,2 % since 2018**. Furthermore, in 2025, more than six out of every ten pig farms (61,5 %) had all their pig categories in the green benchmarking zone.

Evidently, the huge decrease in the premixes, as described above, will have had a big influence on these overall results, but also in the pig categories where that type of use does not play a role, the decrease continued in 2025: the **median BD_{100} in suckling piglets decreased by 26,3 % and in breeding pigs with 14,3 % compared with 2024**. The former category even champions the results overall, with farm-level BD_{100} distribution parameters improved by approximately -65 % to -75 % between 2018 and 2025, the share of farms with a green benchmark colour score growing to over 81 % and the share of farms with a red benchmark colour score dropped below 2 %. The more challenging categories, weaned piglets and fattening pigs, also showed strong progress. In weaned piglets, the median BD_{100} decreased with 15,6 % in 2025 compared to 2024, achieving a total reduction of 39,4 % since 2018. Here, **67.5%** of farms achieved a green benchmark score, while only **3,4 %** remained in the red category. Fattening pigs showed similar improvements: a decrease of the median BD_{100} of 14 % since last year and of 46,7 % since 2018. In this category, **73,4%** of farms scored green and just **3%** scored red. While the median BD_{100} in the weaned piglets remains the highest across all monitored animal categories, it is remarkable that the value decreased for the first time in three years. Also worth mentioning is the substantial decrease of the tonnes of antibacterials used by pig categories with a red benchmark colour score, from 22 % in 2024 to 10,5 % in 2025.

Hence, 2025 was a remarkable year of continued reduction of the antibacterial use in pigs. The pig sector has, overall, shown a more or less continued decrease in the antibacterial use ever since the start of the data collection and benchmarking analysis, at first in the scope of the private initiative AB Register, driven by the Bepork quality scheme, and then with an extra drive following the take-off of SANITEL-MED and a few years later the reduction paths specific for the pig sector. While in the last few years, signs of stagnation appeared, suggesting new incentives might be required to set new steps towards a sustained lowered antibacterial use, a major step forward has been set in 2025, even in the (temporary) absence of the implementation of agreed lower BD_{100}-thresholds and the impeding termination of the production of feed medicated with antibacterials. Once again, the sector proves determined in taking its responsibility and deserves much credit for continuing their good work.

4. Antibacterial use in poultry

Poultry was the only sector where the **BD_{100}-species increased in 2025**, albeit very slightly **(+ 0,4 %)**. This must of course be seen in light of the **overall achievement since 2018 of a 55 % reduction in** the **BD_{100}-species**. There were 81,5 % farms with all categories scoring a green benchmark colour, slightly below the 83 % recorded in 2024, while only 3 % scored a red benchmark colour – a good result even though the sector has long clearly demonstrated to be well positioned to take on more ambitious thresholds.

It is possible that the second full year of data collection in the new poultry categories (chicken rearing, propagation and selection, as well as turkeys), has further improved compliance with the legal reporting obligation. Indeed, the increase in the use is more pronounced in these new categories (notably the new meat chicken categories and turkeys, all of which display increases in most farm-level antibacterial use parameters) than in the **broilers, where the median BD_{100} actually decreased with 7 %** but the P75 increased with 3 %. Anyway, after the sharp decrease in antibacterial use in broilers in 2024, the year 2025 appears to represent a phase of consolidation. In the laying bird categories, including laying hens, the results were more mixed, but the proportion of farms not using antibacterials at all is higher than in the meat-production segment.

Clearly, the most important challenges for the poultry sector are located in the qualitative aspects: structurally reducing the use of quinolones in broilers and of colistin in laying hens. Even though it is alleged that treatment alternatives are limited for laying hens, the fact that 86 % of all treatment days in this category involve colistin warrants close examination.

5. Antibacterial use in veal calves

The veal calf sector achieved another small reduction in its antibacterial use in 2025, with a 2,5 % decrease in its BD_{100}-species and a 3,4 % decrease of the median farm-level BD_{100}-values compared to 2024. Since 2018, total reductions around 40-45 % have been achieved. While the number of veal calf farms with a red benchmark colour score remained unchanged at 5 %, the share of alarm users decreased to 2,3 %, from 3,7 % in 2024. Most remarkable was the increase in the percentage of veal calf farms with a green benchmark colour score, reaching 71 %. This suggests the anticipated new attention value of 6 is now within reach for the majority of the veal calf farms, which is an encouraging result. Nevertheless, overall progress in this sector still lags behind that of the other monitored sectors. The narrow gap between low and high users, pointed out in previous reports, persists, and the sector continues to show the second highest median BD_{100} overall, underlining a deep structural challenge with antibacterial use. On a positive note, use of CIA's further stabilised at low levels, and the sector itself signals progress will become visible in the coming year, supported by substantial focus on mediating the use on farms with a red benchmark colour score, and an outlook to stronger calves upon arrival due to a higher age limit. The efforts made so far deserve recognition and should encourage the sector to strengthen their good work. Collaboration with all stakeholders involved is ongoing and will remain essential to identify and implement the necessary next steps.

6. Antibacterial use in dairy and beef cattle

In their second full year of national, legally obliged data-collection, the results for dairy and beef cattle again point to a low antibacterial use, but are overshadowed by the uncertainty regarding data accuracy and completeness. Stakeholders with field experience hint that an important part of data is missing, the impact of which can only be assessed indirectly, for example by comparing sales and use data of intramammary tubes. The primary priority of the sector at this point is to urgently and decisively tackle this problem. Close collaboration with the responsible authorities is recommended.

Despite this uncertainty, it seems unlikely that the major conclusions drawn from the available data will change. The youngest calves (aged 0-3 months) receive the highest number of treatment days, and a small group of relatively very high users is distinguishable. The available use data suggest an overall decrease in antibacterial use in 2025 compared to 2024: the BD_{100}-species declined by 14 %, and similar reductions were observed in the median BD_{100}-values for the main categories (youngest calves and adult animals) of dairy cattle. In beef cattle, the decrease in the median BD_{100} was more modest (approx. 4 %). The sales data of intramammary tubes appear to confirm the decrease in 2025. An interesting new insight from the use data is the relatively important number of treatment days (in the calves) with the more potent quinolones. While this does not impact the national reduction target, it does warrant closer attention. The treatment days with colistin are also substantial but were lower in 2025 compared to 2024.

7. Antibacterial use in companion animals

With the upcoming requirement from the European Commission to collect antibacterial-use data in companion animals by 2029 at the latest, attention to this sector is increasing. Earlier BelVet-SAC reports (until 2022) reported non-standardised Belgian sales data for products authorised for cats and dogs only, with the obvious drawbacks that these data could not be linked to any changes in the dog and cat population. In the two ESUAvet reports published so far, an analysis of the sales data for 'other animals kept or bred' is included, using denominator data from the yearly FEDIAF reports. That is why in the current BelVet-SAC results, a similar methodology has been used, resulting in non-standardised sales data up till 2025, and standardised sales data for the years 2022-2024. The importance of proper year-on-year standardisation is obvious. Whereas the non-standardised data show modest increases from 2022-2024, the standardised mg/kg indicate a 8,5 % increase between 2022 and 2023 but a status-quo between 2023 and 2024 in the sales for these species in Belgium. In 2025, however, the non-standardised data show a considerable decrease. Future reports will need to determine how this relates to the Belgian dog/cat population. Regardless, the results highlight the need for proper use data, and suggest that antibacterial use in companion animals is within the range of the current results for food-producing animals. This underlines that the companion-animal sector has its own responsibilities to take in the fight against AMR.

8. Antibacterial classes and administration routes

In terms of antibiotic classes and routes of administration, aminopenicillins, tetracyclines, trimethoprim-sulfamide combinations and macrolides remain the most sold and used in 2025, particularly via oral administration. Almost all classes of antibacterials saw a decrease in the sold quantity, except for quinolones and pleuromutilins. As noted above, the result for quinolones is most worrying and deserves urgent attention.

OUTLOOK AND CONCLUSIONS

The prudent use of antibacterials remains a complex and critical issue, and ensuring robust and efficient monitoring systems, with adequate engagement from the users, is essential. This responsibility will continue to shape veterinary and policy efforts for years to come.

For the near future, key challenges remain securing stronger oversight of the sales data collection, as well as ensuring a smooth start of the data-collection for the remaining food-producing species, especially via the VAMREG data collection system. Several new and unexperienced sectors need to start collecting data, posing challenges in reaching them, supporting them and ensuring accurate data and feedback. The scale of this task is illustrated by the bovine sector, where after several years of collection, still considerable concerns about data quality exist. It would be hard to accept that establishing appropriate targets for antibacterial use in that sector is hampered by operational restraints.

AMCRA published new reduction targets in the “Vision 2030”. The evolution of sales and use of antibacterial VMPs will be evaluated in the coming years referring to these general targets as well as to species-specific targets.

In conclusion, monitoring the sales and use of antibacterial VMPs remains a cornerstone of the national AMR strategy.

The results for 2025 present a largely positive picture: a general decrease in total sales, flanked by inspiring reductions in the pig sector, encouraging reductions in bovines and the consolidation of levels of antibacterial use in poultry far below current thresholds. The broiler sector should however structurally solve the lingering need for quinolone use, as well as rise to their own standards by setting more representative use thresholds.

Ultimately, sustained collaboration and commitment from all stakeholders will be essential to drive necessary reductions further. Only through united efforts a healthy and sustainable level of antibacterial use can be achieved that safeguards animal health and protects against the growing threat of AMR.

ACKNOWLEDGEMENTS

MAHs (antibacterial pharmaceuticals) and the MMF (antibacterial premixes) are much obliged for their cooperation and for providing the data on the consumption of antimicrobials in animals in Belgium. All veterinarians and third party organisations who transfer data to the SANITEL-MED system are acknowledged for their efforts. We would like to thank Gudrun Sommereyns from the Belgian Centre for Pharmacotherapeutic Information for providing the information on the commercialised medicinal products. We are grateful to the agricultural and veterinary sector for their overall efforts regarding data registration and reduction of the antibacterial use.

BelVet-SAC

BELGIAN VETERINARY SURVEILLANCE OF ANTIBACTERIAL CONSUMPTION

NATIONAL REPORT ON SALES AND USE OF ANTIBACTERIAL VETERINARY MEDICINAL PRODUCTS

2025

Annexes

afmps fagg
agence fédérale des médicaments et des produits de santé
federaal agentschap voor geneesmiddelen en gezondheidsproducten

AMCRA
IMPROVE HEALTH, REDUCE RESISTANCE

ANNEX I – MATERIALS AND METHODS

ANTIBACTERIAL SALES DATA

Collection of antibacterial sales data

a) Sales of antibacterial VMPs

i. Antibacterial pharmaceuticals and premixes

The sales data of all veterinary medicinal products (VMPs), in every pharmaceutical formulation containing active antibacterial substances and authorised on the Belgian market, were aggregated.

These data can be collected at different levels. Up to and including 2021, these data originated from the distributors and the manufacturers of medicated feed (MMF). Since 2022, the data from the marketing authorisation holders (MAHs) for the antibacterial pharmaceuticals and the data from the MMF for the antibacterial premixes are used as the source data for the calculation of the quantity of antibacterial VMPs sold. The reason for this switch was the new veterinary legislation (Regulation 2019/6), effective since January 2022, that authorises MAHs with the appropriate authorisation to sell VMPs directly to veterinarians, pharmacists and MMF.

Data collection from the MAHs has been conducted biannually since 2016 and was accordingly carried out in 2025. In July 2025 and January 2026, all MAHs with at least one authorised and commercialised antibacterial VMP in Belgium were requested to declare their volume of sales for the first and second semester respectively of 2025 using their customised template in the Vet-AM Sales application. The Vet-AM Sales application was developed under the EU grant SMP-FOOD-2022-AMRtool-AG-IBA – aimed at supporting the 'Implementation of the collection and reporting of data on sales and use of antimicrobials in animals for the period 2022-2027'.

As for the previous BelVet-SAC reports, the data concerning the antibacterial premixes was collected annually from the MMF, considering that they supply to farmers directly and only upon veterinary prescription. In January 2026, the number of packages of sold premixes was reported via the new Vet-AM Sales application. The template in the Vet-AM Sales application only included those premixes that were commercially available in Belgium at that time.

Data on sales of antibacterial VMPs specifically for 'other animals kept or bred' resulted from distinguishing, in the yearly-specific product-level data, the products authorised for use in species not intended for human consumption (dogs, cats, non food-producing pigeons, ornamental birds, rodents, non food-producing rabbits and reptiles).

Figure I.1 provides a schematic overview of the 'flow' of (antibacterial) VMPs in Belgium. Antibacterial VMPs require a veterinary prescription and can then be dispensed by a pharmacist, or dispensed by the prescribing veterinarian, either or not with immediate administration to the animal(s).

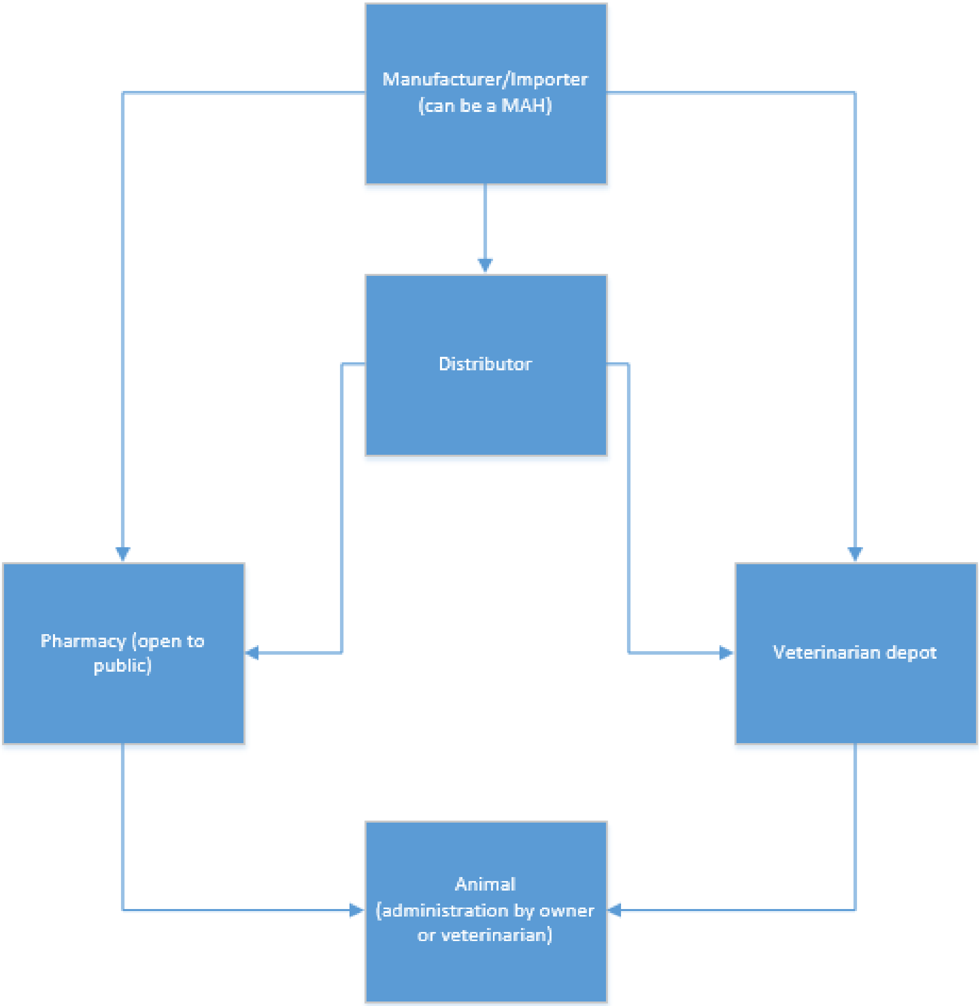


Figure I.1. Flow chart of the sale of VMPs in Belgium.

Figure I.2 is a schematic overview specifically for (antibacterial) premixes and the production of medicated feed. Antibacterial premixes intended for medicated feed are dispensed to MMF either directly by the MAHs or via distributors. The medicated feed is dispensed to the animal owner exclusively on veterinary prescription.

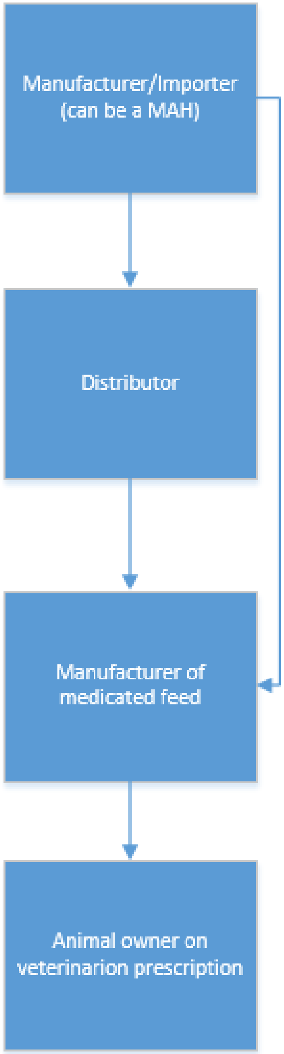


Figure I.2. Flow chart of the sale of feed medicated with antibacterial premixes in Belgium.

ii. Antibacterial classes included in sales data

Table I.1 provides an overview of the groups of antibacterial substances covered in the BelVet-SAC data collection system, together with the corresponding ATCvet codes[13].

The BelVet-SAC data collection covers all antibacterial VMPs (in every pharmaceutical formulation containing antibacterial active substances) that are authorised on the Belgian market. No antibacterial VMPs are excluded from this report, which is broader than the EU-level mandatory Antimicrobial Sales and Use (ASU) collection system, where antibacterial VMPs for dermatological use and for use in sensory organs are generally excluded. The sales data presented in this report may therefore slightly differ from what is reported for Belgium in the ASU report.

[13] https://www.whocc.no/atcvet/atcvet_index/

Table I.1. Groups of antibacterial substances included in the data collection and corresponding ATCvet codes.

Groups of antibacterial substances	ATCvet codes
~ for gastro-intestinal use	QA01AB04 + QA01AB08 + QA01AB10 + QA01AB13 + QA01AB17 + QA01AB21 + QA01AB22 + QA01AB23 + QA01AB25 + QA02BD + QA07AA + QA07AB + QA07AX03 + QA07AX04
~ used in blood and blood forming organs	QB05CA03 + QB05CA04 + QB05CA09
~ for dermatological use	QD01AA + QD06A + QD06BA + QD06BX01 + QD06C + QD07C + QD08F01+ QD09AA01 + QD09AA02 + QD09AA03 + QD10AF
~ for gynaecological use including intrauterine use	QG01AA + QG01AE + QG01AF01 + QG01AX06 + QG01AX90 + QG01BA + QG01BE + QG51AA + QG51AG
~ for systemic use	QJ01 + QJ02AA + QJ04AB + QJ04AC + QJ04AD01 + QJ04AD03 + QJ04AK01 + QJ04AK02 + QJ04AM + QJ04BA
~ for intramammary use	QJ51+ QJ54
~ for use in sensory organs	QS01AA + QS01AB + QS01AE + QS01AX04 + QS01C + QS02AA01 + QS02AA02 + QS02AA07 + QS02AA08 + QS02AA11 + QS02AA12 + QS02AA14 + QS02AA15 + QS02AA16 + QS02AA17 + QS02AA18 + QS02AA30 + QS02AA57 + QS02CA + QS03AA01 + QS03AA02 + QS03AA03 + QS03AA06 + QS03AA07 + QS03AA08 + QS03AA30 + QS03CA
~ for use as antiparasitic	QP51AA01 + QP51AC02 + QP51AG +QP51BA01
~ for use in respiratory system	QR01AX06 + QR01AX08 + QR02AB

b) Animal population data

i. Data for 'all animals'

Animal population data to calculate the produced biomass were derived from the Belgian Statistics Bureau (Statbel website[14,15]). From these animal population data, the biomass (in kg) was calculated according to Grave et al. (2010)[16], as shown in the formula below:

$$biomass\ (kg) = (kg\ beef + pork + poultry + small\ ruminants) + (n\ live\ dairy\ cattle \times 500\ kg)$$

The kilograms of beef, pork, poultry and small ruminants refer to the slaughtered weight as reported at the slaughterhouse.

The calculated biomass is estimated to be 93 % of the total animal biomass in Belgium. This includes animals that were slaughtered in Belgium, but raised in other countries, yet it excludes animals that were raised in Belgium but slaughtered abroad. It also does not include other food-producing species

[14] https://statbel.fgov.be/en/themes/agriculture-fishery/animal-slaughtering#figures
[15] https://statbel.fgov.be/en/themes/agriculture-fishery/farm-and-horticultural-holdings#figures
[16] Grave K, Torren-Edo J and Mackay D (2010). Comparison of the sales of veterinary antibacterial agents between 10 European countries. *Journal of Antibacterial Chemotherapy*, 65, 2037-2010

such as aquaculture and rabbits, companion animals and horses (estimated to be 7 % of the total animal biomass in Belgium).

ii. Data for 'other animals kept or bred'

For certain animal species data are not available in Statbel or Eurostat, and a methodology to consult national data on the number of cats and dogs available in CatID and DogID respectively, is currently lacking. Therefore, figures published in the annual reports of the European Pet Food Industry (FEDIAF[17]) are used as a proxy to calculate the biomass for the 'other animals kept or bred'. FEDIAF publishes, on an annual basis, a report reviewing member association data on market and population trends, including the population of pet animals such as dogs and cats for most of the EU/EEA countries, including Belgium.

It must be noted that the FEDIAF reports come with a two-year delay, meaning their 2026 report included denominator data of 2024, and so on. Therefore, standardisation of the sales data for 'other animals kept or bred' is only possible until 2024 (2026 FEDIAF report).

The yearly number of dogs and cats in the FEDIAF reports was multiplied with a standard weight of 20 kg and 4 kg, respectively, to obtain the yearly biomass of dogs and cats.

[17] https://europeanpetfood.org/

Analysis of antibacterial sales data

The database developed for the purpose of registering the total number of packages sold per VMP for all MMF and MAHs, contains additional product information, consisting of:

- the different active antibacterial substances in the VMP per ml for liquids or per mg for solids
- the weight per active antibacterial substance
- the number of units in one package
- for active antibacterial substances expressed as a salt, the conversion to the base
- for active antibacterial substances expressed in International Units: the ASU[18] conversion factor to mg
- calculated from the above: the total amount of active antibacterial substance (per active antibacterial substance) in one package (per ml or per mg). If the VMP contains more than one antibacterial active antibacterial substance, the calculation was done for each substance.
- the ATC vet code for each (combination of) active antibacterial substance(s) required for the ASU reporting
- the class of the antibacterial VMP, the AMEG code and the AMCRA colour code.

The general mg/kg sales indicator is calculated by standardising, per year, the sum of the sold mg active antibacterial substance over all pharmaceuticals and/or premixes, for all or (a) specific class(es) of active substances, with the total biomass for Belgium.

The mg/kg indicator for sales specifically for 'other animals kept or bred' is calculated by standardising, per year, the sum of the sold mg active antibacterial substance from products authorised for use in species not intended for human consumption, with the total biomass of cats and dogs in Belgium.

[18] EMA Antimicrobial Sales and Use (ASU) technical implementation protocol

Validation of antibacterial sales data

a) External data validation

The sales data are compared to the reported use data in SANITEL-MED.

Previously, the data on antibacterial premixes collected by the FAMHP were compared to the data collected by the Belgian Feed Association[19] to compare trends and evolutions. As the production of medicated feed containing antibacterial VMPs has dropped significantly over the past years and the goal is to phase out their use completely by the end of 2026, this comparison was not performed for the 2025 data.

b) Internal data validation

With the introduction of the Vet-AM Sales platform, sales data from MAHs and MMFs are now securely collected via the PharmaStatus website managed by the FAMHP. This application is secured with two-factor authentication, and all the login information is stored in a database hosted internally at the FAHMP.

Each MAH and MMF has access to a predefined selection of VMPs for which they can enter sales data. This selection is automatically determined based on their profile: MAHs can report on their currently commercialised owned products while MMFs can enter data for all currently commercialised premixes. The selection is refreshed prior to each declaration period.

A validation system ensures the accuracy of the declarations, verifying that VMP information (such as identification number, name, ...) remains unchanged. It also checks that a sales quantity is provided for each product – zero indicating no sales – and that the quantity is a natural number (integer). Any errors are immediately displayed on the user screen, along with recommendations on how to correct them. To prevent multiple submissions from the same company, only one entry per period is permitted. After submission, MAHs and MMFs cannot edit their data themselves; required corrections are handled manually by FAMHP administrators.

The data submitted by MAHs was reviewed for consistency by comparison with the values from previous years. MMF data were examined to confirm that the reported figures reflected the number of sold packages and not the sold mass (kg). All MMFs were contacted again to make sure the reporting was done correctly. In addition, as for the MAH data, the data were compared with previous years. Within the MMFs and MAHs, respectively, outliers were identified.

19 www.bfa.be

ANTIBACTERIAL USE DATA

Collection of antibacterial use data in SANITEL-MED

a) Registrations of antibacterial use at the farm

Since 27 February 2017, veterinarians are legally obliged[20] to register all prescriptions, administrations and deliveries of antibacterial VMPs (pharmaceuticals as well as premixes, incl. premixes containing ZnO as an antidiarrheal substance) for pigs, broilers, laying hens and veal calves in the secured online data collection system 'SANITEL-MED', the data collection system of the FAMHP.

As of 10 August 2023, the mandatory data collection in SANITEL-MED is extended to all cattle and all categories of poultry of the species chicken and turkey.

SANITEL-MED is accessible as a web application or through automated data transfer using xml (webservices).

To manually register[21] the use of an antibacterial VMP in the web application, the veterinarian first creates a 'Medicinal Delivery Document' containing the identification of the veterinarian and the farm as well as the type, number and date of the reference document (prescription or 'treatment and delivery document/register out' of the veterinarian). Secondly, one or more 'notifications' of the use of antibacterial VMPs are added to this Medicinal Delivery Document, each representing a specific prescription, delivery or administration of an antibacterial VMP.

The antibacterial registration (AB-registration) needs to mention the unique identification product key and the quantity of the VMP. The veterinarian can select the VMP from a regularly updated medicinal product list, which includes all antibacterial VMP packages commercialised in Belgium, identified by their national reference code (cti-ext). Similar to the antibacterial sales data, all groups of antibacterial substances that are listed in Table 1 are included. For pharmaceuticals, the veterinarian needs to register the quantity used as either the number of 'packages' or the number of 'units', allowing for decimals, including values below one. For premixes, either the number of packages or the weight in kilograms can be registered, allowing for decimals, including values below one.

VMPs that are not in the medicinal product list (e.g. VMPs that are authorised in Belgium or in another Member State but not commercialised in Belgium, products for human use or products prepared extemporaneously according to a veterinary prescription) need to be registered as a 'Self-Defined Product' (SDP), requiring additional data fields, to allow calculation of the used quantity of antibacterial active substance and the BD_{100}-indicator (see below).

Also the animal species and category for which the antibacterial VMP is intended is required for each AB-registration (*Table I.2*).

A list with all AB-registrations is accessible to the Data Science and Analysis unit of AMCRA as a report, based on a query developed and maintained by the FAMHP, that can be extracted by AMCRA through a secured online business object tool provided by the Federal Agency for the Safety of the Food Chain (FASFC).

[20] https://www.ejustice.just.fgov.be/cgi_loi/change_lg.pl?language=nl&la=N&cn=2016072106&table_name=wet
[21] https://prd.sanitel.be/web/PRD_SanitelMed_Web/Account/Login?ReturnUrl=%2Fweb%2FPRD_SanitelMed_Web%2F

Table I.2. Animal species and categories that can be selected in the SANITEL-MED data collection system.

Animal species / category	Date included in mandatory data collection	Year included in BelVet-SAC
Pigs		
Suckling piglets	27/02/2017	2018
Weaned piglets	27/02/2017	2018
Fattening pigs	27/02/2017	2018
Breeding pigs	27/02/2017	2018
Poultry		
Broilers	27/02/2017	2018
Meat propagation – selection	10/08/2023	2024
Meat rearing – propagation – selection	10/08/2023	2024
Laying hens	27/02/2017	2018
Lay rearing	10/08/2023	2024
Lay propagation – selection	10/08/2023	2024
Lay rearing – propagation – selection	10/08/2023	2024
Turkey breed	10/08/2023	2024
Turkey meat	10/08/2023	2024
Hatching eggs	10/08/2023	-
Day-old chicks	10/08/2023	-
Veal calves	27/02/2017	2018
Beef cattle		
Calves (0 to 3 months)	10/08/2023	2024
Calves (4 to 8 months)	10/08/2023	2024
Young stock (9-24 months)	10/08/2023	2024
Bovine adult beef	10/08/2023	2024
Milk cattle		
Calves (0 to 3 months)	10/08/2023	2024
Calves (4 to 8 months)	10/08/2023	2024
Young stock (9-24 months)	10/08/2023	2024
Bovine adult dairy	10/08/2023	2024

Veterinarians can register the data at any moment, on the condition that all data from a given quarter are registered on the 14th day of the following quarter at the latest. The farmer or person responsible for the animals should verify the accuracy of the data and ask the veterinarian for corrections if needed, no later than the last day of the first month of the following quarter. So, there are four 'deadlines' a year, known as 'Data-Lock-Points', for both veterinarians and farmers (***Figure I.3***).

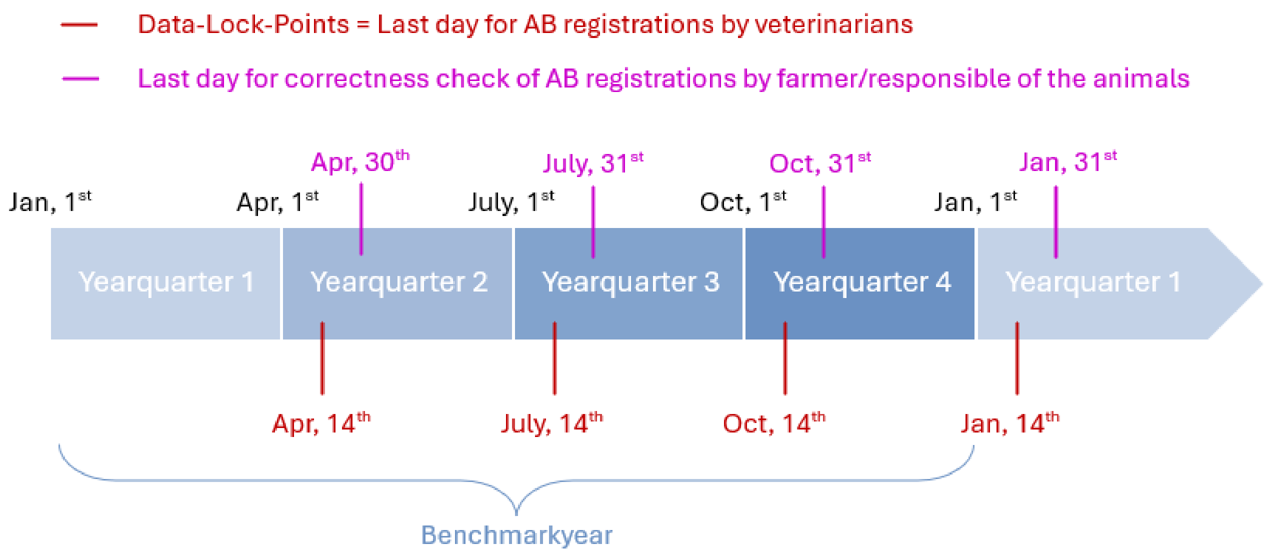


Figure I.3. The timeline of the SANITEL-MED data collection throughout a year.

So-called 'third parties' (i.c. other Belgian data collection systems) can transfer the legally required data, registered by the veterinarian in their collection system, to SANITEL-MED, on behalf of the veterinarian, following the same data lock points. Nonetheless, both the veterinarian and the farmer share the responsibility for the completeness, accuracy and timeliness of the AB-registrations in SANITEL-MED. More information on the timelines for the SANITEL-MED data-collection is available via this link.

Reprising ***Figure I.1***, explaining the flow of the sales of (antibacterial) VMPs in Belgium, the data from SANITEL-MED originate at the bottom of the chain and cover data on the use of antibacterial VMPs at farm-level (***Figure I.4***). Noteworthy, from the information provided above, it can be understood that not all SANITEL-MED data are 'use data' in a strict sense; indeed, prescribing or dispensing a VMP does not necessarily mean that this VMP has subsequently been used. Nonetheless, it is deemed likely that most antibacterial VMPs prescribed or dispensed are eventually used. Therefore, the SANITEL-MED data are referred to as 'use data'.

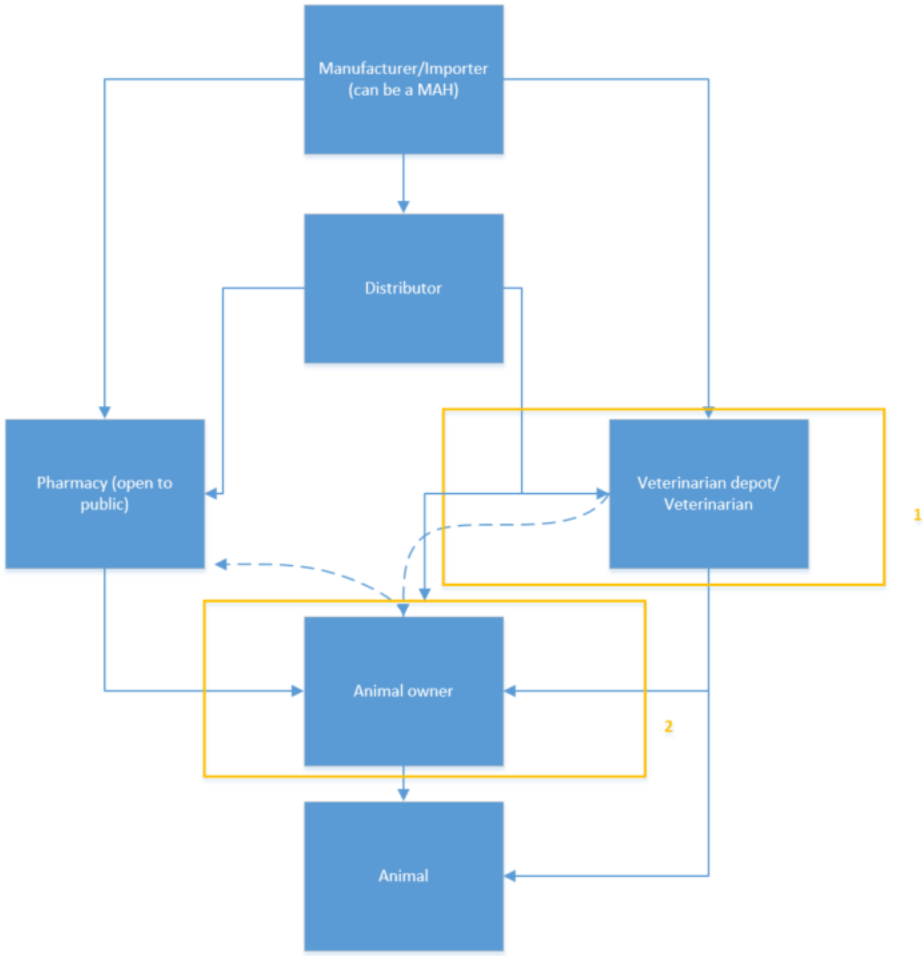


Figure I.4. Origin of SANITEL-MED data concerning farm-level use of antibacterial pharmaceuticals. Veterinarians can directly administer antibacterials to the animals, dispense the antibacterials to the farmer (after which the farmer administers them to the animals following the guidelines of the veterinarian for continuation of the treatment), or prescribe the antibacterials which can then be bought in a pharmacy (dashed line) or from an MMF (in case of medicated feed, not shown in the figure). The responsibility for registration in SANITEL-MED encompasses two levels (dark yellow boxes): 1. the veterinarian who administers/dispenses/prescribes the antibacterial VMP and registers this in the data collection system, and 2. the animal owner who checks and validates the AB-registrations.

b) Average number of animals present daily at the farm

For calculation of the denominator of the antibacterial use indicator BD_{100} (see further) the mass of animals 'at risk' for antibacterial treatment is needed. The requires the daily number of animals present at each farm. This number is generally deduced from the identification and registration data present in the SANITEL[22]-database (owned and managed by the FASFC and linked to SANITEL-MED) which is accessible to the Data Science and Analysis unit of AMCRA as a report, based on a query developed and maintained by the FAMHP, that can be extracted by AMCRA through a secured online business object tool provided by the Federal Agency for the Safety of the Food Chain (FASFC).

[22] https://favv-afsca.be/nl/sanitel

i. Veal calf farms

The daily number of veal calves present is determined per semester by calculating the average (arithmetic mean) of the monthly veal calf numbers at each farm, considering only the months with veal calf numbers higher than zero. From January 2018 till July 2019, the monthly veal calf numbers have been calculated as the average occupation number, considering the number of arrivals, births, departures and deaths per month on the farm as notified in SANITEL. From August 2019 onwards, the monthly veal calf numbers are calculated as the average of the number of veal calves registered in SANITEL on the 1st, 10th and 20th day of each month and the 1st day of the subsequent month.

ii. Poultry farms

As of 2019, for each SANITEL-MED poultry category present on a poultry facility, the daily number of chickens (or turkeys) present is determined per quarter for each of the corresponding poultry sanitary units of that facility, by averaging (arithmetic mean) the SANITEL-capacity data from the beginning and end of the quarter. If one of these capacity values is zero, only the capacity greater than zero is considered for that quarter.

For the 2018 dataset, the capacity numbers from the annual FASFC 'Biosecurity-survey' were chosen over the data in SANITEL. These were either a separate capacity for broilers and laying hens on a facility, a total capacity for broilers and laying hens on a facility, or a total capacity for either broilers or laying hens on a facility. If for a given facility AB-registrations were present in SANITEL-MED for a poultry category missing from the Biosecurity-survey but for which capacity data was available in SANITEL, the SANITEL-capacity was used.

iii. Pig farms

For pigs, data in SANITEL include both capacity data, which are updated whenever practical changes occur (such as building a new stable or changing an existing one), and actual pig count data, which must be recorded by the herd veterinarian at least three times a year. The capacity is the preferred pig number in the calculations; if not available, pig count data are used. The daily number of pigs present per pig category (for (weaned) piglets, fattening pigs and breeding pigs) is calculated per quarter as the average (arithmetic mean) of the SANITEL-capacity/count data at the beginning and end of the quarter. If one of these values is zero, only the capacity greater than zero is used for that quarter.

The number of suckling piglets, which is not included in SANITEL, is calculated from the number of breeding pigs using the formula

$$\#\, suckling\ piglets = {}^{\#\, breeding\ pigs \times 30}/_{12}$$

The number of gilts is added to the number of breeding pigs if the latter are present at the farm; if not, gilts are counted as fattening pigs. No separate antibacterial use analysis is done for gilts.

iv. Dairy and beef cattle farms

For each SANITEL-MED dairy and beef cattle category (see ***Table I.2***), the daily number of cattle present on the farm is determined per quarter by averaging (arithmetic mean) the monthly numbers of animals, considering only the months within the quarter when animals are present for that animal category. The monthly number of animals is calculated as the average of the number of cattle registered in SANITEL on the 1^{st}, 10^{th} and 20^{th} day of each month and the 1^{st} day of the subsequent month. For each of these days, per age category and race type first the sum of male and female animals present in SANITEL is calculated. Animals with race type 'mixed' are by default added to the corresponding age category of the race type 'milk', unless only 'meat' and 'mixed' animals are present on the farm; in the latter case the 'mixed' animals are added to the corresponding 'meat' category.

c) Number of active farms

The number of active farms sets the baseline for determining the reference population for benchmarking (see Quality control for defining the yearly reference populations for benchmarking), as this represent the farms having raised animals, hence, where antibacterial VMPs could have been used. Whether a farm is 'active' or not is encoded at sanitary unit level as a separate feature in SANITEL.

A list of active sanitary units is accessible to the Data Science and Analysis unit of AMCRA as a report, based on a query developed and maintained by the FAMHP, that can be extracted by AMCRA through a secured online business object tool provided by the FASFC.

d) Veterinary contract

The Data Science and Analysis unit of AMCRA has access to a report listing all agreement roles, between a herd veterinarian and a farm, that were stopped, initiated or remained active since 01/04/2017, including the start and end dates of each agreement. This report is based on a query, developed and maintained by the FAMHP and can be extracted by AMCRA through a secured online business object tool provided by the FASFC.

Analysis of antibacterial use data

a) Determination of the antibacterial use numerator

i. Mg active antibacterial substance used

The mg active antibacterial substance used is calculated per SANITEL-MED AB-registration, using the formula

$$active\ substance\ used\ (g) = quantity\ antibacterial\ VMP\ \times strength$$

For pharmaceuticals, when the use data are registered per package, the quantity of antibacterial VMP is the number of packages times the number of units of antibacterial VMP per package. The use data can also be registered directly as the number of used units. The strength is the number of units of active antibacterial substance per unit of VMP and is taken from the VMPs' summary of product characteristics (SmPC). Where applicable, the same conversion factors for international units to mg or from salt to base were used as for the sales data analysis. If the VMP contains more than one active antibacterial substance, the calculation is done for each substance and the sum is made.

For premixes, if the number of packages of the premix is registered, this number is first recalculated to kg premix used. From the kg premix used, the quantity active antibacterial substance used is calculated by multiplying the kg premix used with the mg active antibacterial substance per kg premix, obtained from the SmPC.

After calculating the total mg of active antibacterial substance used per AB-registration, these amounts can be aggregated by farm, by type of active antibacterial substance, by animal category and by animal species, and recalculated to kg or tonnes used.

ii. Number of $DDDA_{bel}$ used

The $DDDA_{bel}$ (the Defined Daily Dose Animal for Belgium) is the daily dose (in mg) per kg live bodyweight for VMPs that are administered orally or through injection, and the daily dose (in mg) per animal for VMPs that are administered locally or topically. The number of $DDDA_{bel}$ used (# $DDDA_{bel}$) is calculated per AB-registration using the formula

$$\#\ DDDA_{bel}\ =\ mg\ active\ antibacterial\ substance\ / DDDA_{bel}$$

The $DDDA_{bel}$-values for all antibacterial VMPs in the SANITEL-MED medicinal product list and for all SDPs are defined and maintained by AMCRA in 'Antibacterial-dosing' lists formulated per animal species, available on the AMCRA website[23]. Per VMP also a minimum dose is defined, as the lowest dose mentioned in the SmPC to be administered to a kg animal in the shortest timespan mentioned in the SmPC. These lists also contain the LA_{bel} (Long-Acting factor defined for Belgium) of each VMP. This LA_{bel} factor corrects for the longer duration of action of certain VMPs in the calculation of the BD_{100} (cf. further, Calculation of the indicator BD_{100}). For not-long-acting VMPs, the LA_{bel} equals 1. The procedures for determining the DDD_{bel} and LA_{bel} values are also available on the aforementioned AMCRA webpage.

[23] https://www.amcra.be/nl/analyse-antibioticagebruik/

b) Determination of the antibacterial use denominator

i. Animals and kg at risk per species at national level

The national number of animals and the kg animals at risk (for antibacterial treatment) per species is calculated from the yearly average number of animals in Belgium per animal category, as registered in the Statbel database[24] (accession date: 27/05/2026) in the final Agricultural figures of 2025. ***Table I.3*** shows the categories retrieved from the Statbel database to calculate the total number of animals at risk and the standard weights to calculate the corresponding kg at risk. These are retrieved from EMA (2013)[25] except for the weight of veal calves, dairy and beef cattle and poultry other than broilers and turkey, for which standard weights as agreed with the respective sectors are applied.

In case of unavailability of the final Statbel numbers at the above listed accession date, for pigs the number as listed in the Provisional agricultural results are used; for poultry, the numbers from the final Agricultural figures of the previous year are used; for veal calves, aggregated overall averages calculated from the semestrial averages (see above) are used.

It must be noted that for poultry, the denominator calculated from 2024 onwards was different from that in the previous years, as the (grand)parents and the turkeys were included – as was the case for the numerator data of 2024 as well.

Table I.3. Categories and standard estimated weights at treatment for the calculation of the BD$_{100}$-species.

Piglets of <20 kg	12 kg	Laying hens	2 kg	Bovines < 1 year to be slaughtered as calves	160 kg	Bovines < 1 year	160 kg
Pigs 20-50 kg + fatteners	50 kg	Broilers	1 kg			Bovines 1-2 year	400 kg
Breeding pigs >50 kg	220 kg	Turkey	6 kg			Adult cattle	750 kg
		Breeder hens	1,9 kg				
		Pullets	1 kg				
		Breeder cocks	3,5 kg				

24 https://statbel.fgov.be/en/themes/agriculture-fishery/farm-and-horticultural-holdings#figures
25 https://www.ema.europa.eu/en/documents/scientific-guideline/revised-european-surveillance-veterinary-antimicrobial-consumption-esvac-reflection-paper-collecting_en.pdf

ii. Animals and kg at risk per farm per animal category

Per animal category on each farm, the kg animals at risk of treatment is calculated using the formula

$$kg\ animals\ at\ risk = number\ of\ animals\ \times estimated\ standard\ weight\ (kg)\ at\ treatment$$

The estimated standard weights at treatment shown in ***Table I.4*** are used. There are retrieved from EMA (2013)[25] except for the weight of veal calves, for which standard weights as agreed with the respective sectors are used.

Table I.4. Categories and standard estimated weights at treatment for the calculation of the BD_{100} at farm level.

Suckling piglets	4 kg	Broilers	1 kg	Veal calves	160 kg	Calf 0-3m milk	80 kg
Weaned piglets	12 kg	Laying hens	2 kg			Calf 4-8m milk	160 kg
Fattening pigs	50 kg	Lay rearing-propagation-selection	1 kg	Veal calves on farms with exclusively double muscled calves during the benchmarking period	210 kg	Young stock 9-24m milk	400 kg
Sows	220 kg	Meat rearing-propagation-selection	1 kg			Adult cows +24m milk	700 kg
		Lay propagation-selection	1,9 kg			Calf 0-3m beef	100 kg
		Meat propagation-selection	3,5 kg			Calf 4-8m beef	210 kg
		Lay rearing	1 kg			Young stock 9-24m beef	500 kg
		Turkey	6 kg			Adult cows +24m beef	800 kg

c) *Indicators of antibacterial use*

i. Mg used

The total amount of active antibacterial substance used is calculated from the sum of the mg used in all SANITEL-MED AB-registrations for that species.

ii. BD_{100}

The BD_{100} represents the % of time an animal is treated with antibacterials. This indicator is calculated with the formula:

$$BD_{100} = \left[\left(\#DDDA_{bel} / kg\ animals\ at\ risk \times days\ at\ risk\right) \times LA_{bel}\right] \times 100$$

To obtain a result per farm and animal category, the BD_{100} is first calculated per SANITEL-MED AB-registration with 30,42 days at risk and with the number of animals at risk determined for that month (= BD_{100}-month). Then, the sum of these BD_{100}-month-values over all AB-registrations in one month is made, from which an average over the months in the benchmarking period is calculated, resulting in a final average BD_{100} per animal category on a farm.

iii. BD_{100}-species

The BD_{100}-species is calculated with the BD_{100} formula shown above but with numerator and denominator data at species level. It is per species the sum of:

- BD_{100}-species$_{mg/kg}$: calculated with in the numerator the total # $DDDA_{bel}$*LA_{bel} used for VMPs administered orally or through injection and in the denominator the animal weight (in kg) at risk.
- BD_{100}-species$_{mg/animal}$: calculated with in the numerator the total # $DDDA_{bel}$*LA_{bel} used for VMPs administered locally or topically and in the denominator the number of animals at risk.

d) *Antibacterial use by the contract veterinarian*

The part of the antibacterial use (excl. ZnO) at farm level by the contract veterinarian is calculated by linking the veterinarian responsible for an AB-registration in SANITEL-MED to the veterinarian having a contract with the farm at the document date. In addition, the part of the antibacterial use (excl. ZnO) at farm level by a veterinarian who is not the contract veterinarian but who is linked to the veterinary practice to which the contract with the farm is allocated, as a legal person, is determined.

Quality control for possibly erroneous AB-registrations

Numerator data are subjected to quality controls for possibly erroneous AB-registrations. AB-registrations that are considered possibly erroneous and have not been confirmed as being correct are excluded for further calculations or analyses.

The registered quantity of antibacterials is considered possibly erroneous in the following cases:

- Intramammary or intrauterine VMPs used in non-adult categories of pigs and cows (piglets, fatteners, calves).
- The number of packages is greater than one – in case of a multi-package VMP for injection or cutaneous use.
- The number of packages is greater than 50.
- The administered number of packages is lower than the quantity needed to treat, with the minimum dose listed in the SmPC, an animal of 1 kg (pigs), 0,042 kg (broilers and chicken rearing categories), 2 kg (other chicken categories and turkeys) and 35 kg (veal calves and cattle).
- The BD_{100} calculated for a AB-registration is higher than 100.
- The premix ppm is unlikely low or high (based on the VMP specific SmPC's) and only relevant for AB-registrations dated before 2022).

Quality control for defining the reference populations for benchmarking

The reference population for benchmarking is used to study the distribution of the BD_{100} in an animal category and its evolution. The reference population is defined per animal category as the group of farms that, for the period under consideration:

- were 'active' (see below, point a)
- had no 'errors' in their SANITEL-MED AB-registrations (see below, point b)
- fulfilled the conditions with respect to 'minimum herd size and empty stables' (see below, points c and d).

In the reference populations, a further distinction is made between zero-registration farms and registration-farms (see below, point e). Specifically for dairy and beef cattle, being a zero-registration farm is an additional criterium to be excluded from the reference populations for benchmarking.

a) Active during the whole benchmarking period

A farm is eligible for inclusion in the benchmarking reference population for a certain period when it was encoded as 'active' in SANIITEL during the whole period.

For poultry farms, more specifically, all sanitary units need to have been active during the whole period for the facility to be included in the benchmarking reference population.

Pig farms encoded as 'active' but not having any AB-registration in SANITEL-MED and either having no recent animal count date (i.e., count date falls before the period considered) or having a recent count date (count date falls before the considered period) but with all counts in that period equalling zero, are excluded (considered *de facto* inactive).

Veal calf farms and dairy and beef cattle farms encoded as 'active', yet not having any AB-registration in SANITEL-MED and having no animals in the considered period, are excluded (considered *de facto* inactive).

b) AB-registration errors

Two types of errors are distinguished:

i. AB-registrations for which a BD_{100} cannot be (reliably) calculated due to missing denominator data or due to denominator data considered unreliable (in pigs: no recent count date, or a recent count date but counted animals equalling zero).

ii. AB-registrations where the delivered quantity is considered erroneous (see higher, Quality control for possibly erroneous AB-registrations).

Farms that have AB-registrations errors that are not confirmed as correct are excluded from the benchmarking reference population.

c) Empty stables

Pig farms with recent count data equalling zero for two consecutive trimesters, poultry farms with facility capacities equalling zero at the start of two consecutive trimesters, veal calf farms with at least one semester without animals and dairy and beef cattle farms without animals for at least half of the count dates in a trimester are excluded from the benchmarking reference populations.

d) Minimum herd size requirements

For the data until 2020 included, a minimum herd size was defined for all included animal categories, as shown in *Table I.5*. Poultry and pig farms with animal numbers below the minimum for at least one quarter were excluded from the benchmarking reference populations. Veal calf farms with animal numbers below the minimum for at least one semester were excluded from the reference populations.

Table I.5. Minimum herd size to be included in the benchmark reference groups (until 2020 included).

Weaned piglets	50 animals	Broilers	5000 animals	Veal calves	25 animals
Fattening pigs	100 animals	Laying hens	5000 animals		
Sows	10 animals				

From 2021 onwards, these criteria were no longer taken into account to define the benchmarking populations for pigs. For poultry and veal calf farms these minimum herd size requirements still need to be fulfilled to be included in the benchmarking reference groups.

From September 2023 onwards, the minimum herd size requirement of 5000 animals per facility in each trimester of the benchmarking period was extended to the additional poultry categories of the species chicken and turkey (*Table I.6*). For dairy and beef cattle farms, a minimum average of 11 adult cows (animals of +24 months old) throughout the one-year benchmarking period is required for an animal category to be included in the benchmarking reference populations determined for beef and milk animals separately.

Table I.6. Current minimum herd size requirements to be included in the benchmark reference population.

Species	Minimum average herd size	Period
All poultry categories	5000 animals on facility level	per trimester
Veal calves	25 animals	per semester
Dairy and beef cattle	11 adult animals (+24 months)	per year

e) Zero-registration farms

A zero-registration farm is defined as a farm that has no AB-registrations in SANITEL-MED in a given period.

- For pig farms, this is at species level: no AB-registrations during the benchmarking period for all categories present at the farm.
- For poultry farms and veal calf farms, a zero-registration farm is defined at animal category level: no AB-registrations for an animal category during the benchmarking period.
- For dairy and beef cattle farms, a zero-registration farm is defined at the milk or beef production level: no AB-registrations during the benchmarking period for all milk categories present at the farm, and similar for the beef production.
    - For dairy and beef cattle farms, all categories from zero-registration farms are excluded from their respective benchmarking reference populations.

ANNEX II – ADDITIONAL FIGURES AND TABLES

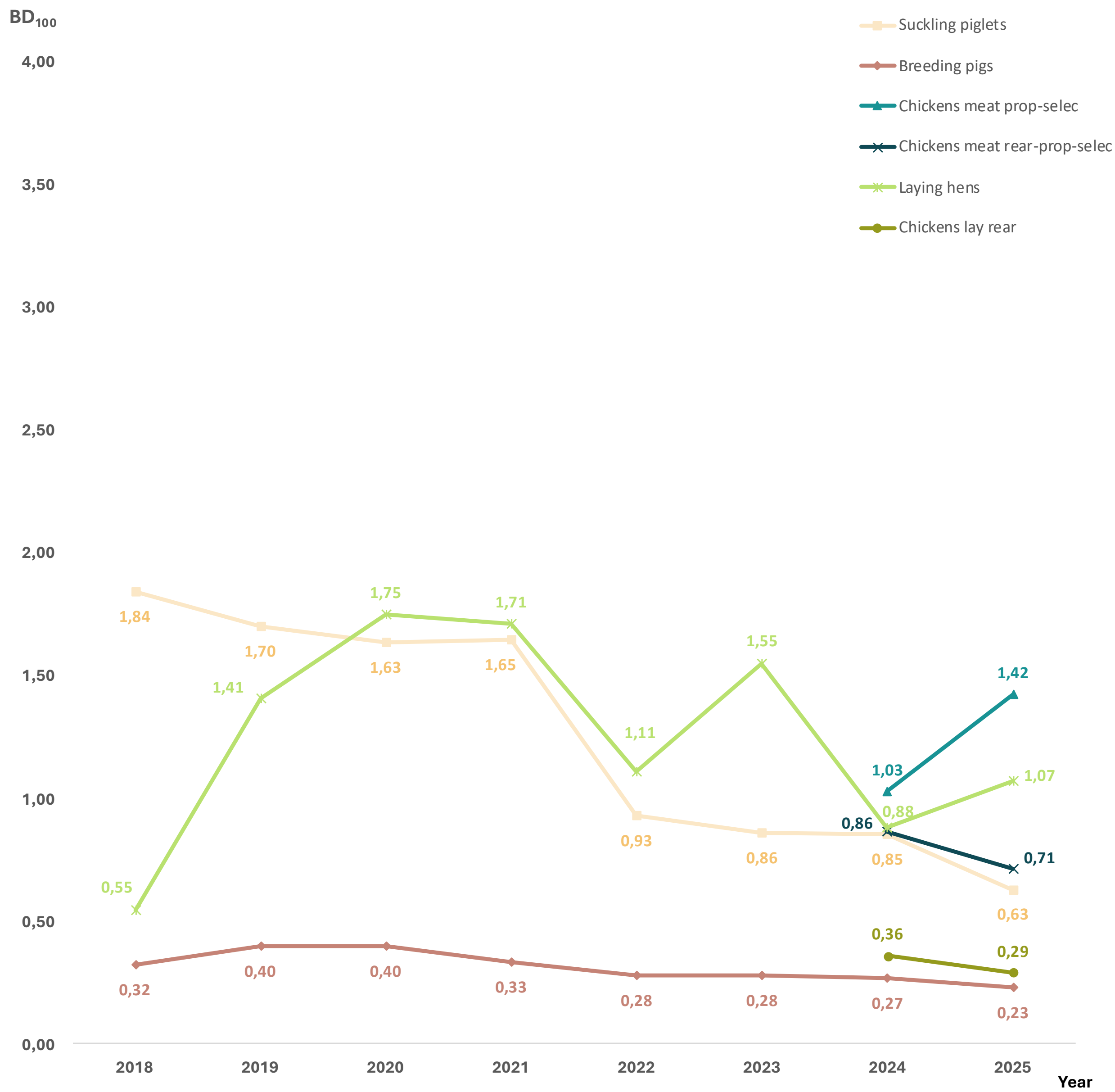


Figure II.1. Evolution of the median of the BD_{100}-distribution in the benchmarking reference populations, excluding zero-registration farms, from 2018* till 2025 for the minor SANITEL-MED animal categories.**

** For the categories for which data is being collected since 2018. Meat/milk calves 4-8 months and young stock 9-24 months are not included as their median BD_{100}-value equalled zero in both 2024 and 2025.*

*** Selected based on the lowest median BD_{100}-values, on the number of farms involved and on the mass of antibacterials used.*

Table II.1. The evolution of sales in kg per antibacterial substance since 2018 (when relevant), grouped per antibacterial class, AMCRA colour code and administration route.

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
Cephalosporins 1G/2G	Cefadroxil	2023			54		54			54
		2024			58,1		58,1			58,1
		2025			53,7		53,7			53,7
	Cefalexin	2018		106,6	619,9		726,5			726,5
		2019	157,8	184,1	658,2		1000,1			1000,1
		2020	397,9	155	689		1241,9			1241,9
		2021	372,3	126,6	697,2		1196,1			1196,1
		2022	306,8	95,7	515,2		917,7			917,7
		2023	302,9	34,4	712,8		1050,1			1050,1
		2024	214,2	88	708,9		1011,1			1011,1
		2025	338	84,5	550,7		973,2			973,2
	Cefalonium	2018		9,3			9,3			9,3
		2019		8,7			8,7			8,7
		2020		10,8			10,8			10,8
		2021		8,9			8,9			8,9
		2022		8			8			8
		2023		9,6			9,6			9,6
		2024		7,2			7,2			7,2
		2025		6,3			6,3			6,3
	Cefapirin	2018		31,5		13,7	45,2			45,2
		2019		28,1		13,2	41,3			41,3
		2020		15,8		12,6	28,4			28,4
		2021		39,3		11,8	51,1			51,1

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals				Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
			Injection	Intramammary	Oral	Other				
		2022		39,6		10,4	50			50
		2023		63,8		11,3	75,1			75,1
		2024		70,6		5,2	75,8			75,8
		2025		64,4		9,7	74,1			74,1
	Cefazolin	2018		7,3			7,3			7,3
		2019		3,2			3,2			3,2
		2020		7,7			7,7			7,7
		2021		8,5			8,5			8,5
		2022		8,4			8,4			8,4
		2023		4,3			4,3			4,3
		2024		6,5			6,5			6,5
		2025		0,7			0,7			0,7
Other	Bacitracin	2018			28,2		28,2			28,2
		2019			25,4		25,4			25,4
		2020			32,1		32,1			32,1
		2021			46,1		46,1			46,1
		2022			-2,5		-2,5			-2,5
		2023			15,9		15,9			15,9
		2025			0		0			0
	Metronidazol	2018			234,9		234,9			234,9
		2019			264,4		264,4			264,4
		2020			231		231			231
		2021			318,9		318,9			318,9
		2022			302,1		302,1			302,1
		2023			379,7		379,7			379,7

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2024			357		357			357
		2025			321,3		321,3			321,3
Penicillins	Benzylpenicillin	2018	9255,8	76,3			9332,1			9332,1
		2019	6839	100,7			6939,7			6939,7
		2020	6907,9	112,4			7020,3			7020,3
		2021	7314,1	134,1			7448,2			7448,2
		2022	8335,9	101,5			8437,4			8437,4
		2023	6088,1	64			6152,1			6152,1
		2024	6013	101,1			6114,1			6114,1
		2025	5638	106,8			5744,8			5744,8
	Cloxacillin	2018		244,3			244,3			244,3
		2019		170,7			170,7			170,7
		2020		138,8			138,8			138,8
		2021		132,1			132,1			132,1
		2022		156,9			156,9			156,9
		2023		134,3			134,3			134,3
		2024		131,9			131,9			131,9
		2025		99,9			99,9			99,9
	Fenoxymethyl penicillin	2018			1078,4		1078,4			1078,4
		2019			1424,4		1424,4			1424,4
		2020			1512,4		1512,4			1512,4
		2021			520,7		520,7			520,7
		2022			1827,6		1827,6			1827,6
		2023			902,9		902,9			902,9
		2024			809,6		809,6			809,6

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2025			538		538			538
	Nafcillin	2018		6			6			6
		2019		7,3			7,3			7,3
		2020		8,9			8,9			8,9
		2021		8,6			8,6			8,6
		2022		8,7			8,7			8,7
		2023		10,9			10,9			10,9
		2024		8,6			8,6			8,6
		2025		7,4			7,4			7,4
Phenicols	Florfenicol	2018	2579,9		460,2	0,7	3040,8	279,2	279,2	3320
		2019	2272,4		642,6	0,7	2915,7	243	243	3158,7
		2020	2210,9		768,9	0,8	2980,6	268,9	268,9	3249,5
		2021	2418,1		1102,2	1,2	3521,5	302	302	3823,5
		2022	2273,1		1133,6	1,7	3408,4	228	228	3636,4
		2023	1791		839,4	1,6	2632	215	215	2847
		2024	2031,9		1099,8	1,6	3133,3	111	111	3244,3
		2025	1983,4		983,2	1,6	2968,2	126	126	3094,2
	Thiamfenicol	2019				0	0			0
		2020				3,1	3,1			3,1
		2022				1,2	1,2			1,2
		2023				1,5	1,5			1,5
		2024				1,7	1,7			1,7
		2025				0,3	0,3			0,3
Pleuromutilins	Tiamulin	2018	9,5		993		1002,5	539,1	539,1	1541,6
		2019	11,8		806,2		818	288,4	288,4	1106,4

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2020	9,9		441,7		451,6	109	109	560,6
		2021	7,8		304,7		312,5	76,1	76,1	388,6
		2022	5,6		290,2		295,8	21,1	21,1	316,9
		2023	5,5		201,5		207	27,5	27,5	234,5
		2024	4,3		102,9		107,2	9,7	9,7	116,9
		2025	3,6		108,6		112,2	21,1	21,1	133,3
Sulfonamides and trimethoprim	Sulfachlorpyridazine	2018			921,4		921,4			921,4
		2019			402,1		402,1			402,1
		2020			679,7		679,7			679,7
		2021			188,5		188,5			188,5
		2022			459,4		459,4			459,4
		2023			301,2		301,2			301,2
		2024			261,6		261,6			261,6
		2025			134		134			134
	Sulfadiazine	2018	1665,3		27023,5		28688,8	36,9	36,9	28725,7
		2019	2051,2		25277,9		27329,1	0	0	27329,1
		2020	89,3		25950,7		26040	75,6	75,6	26115,6
		2021	94		24800,9		24894,9	220,9	220,9	25115,8
		2022	96,3		15946,4		16042,7			16042,7
		2023	101,3		9112,9		9214,2	15,6	15,6	9229,8
		2024	132,9		11147,1		11280			11280
		2025	267,1		9185,2		9452,3	0	0	9452,3
	Sulfadimethoxine	2018			35,2		35,2			35,2
		2019			29,9		29,9			29,9

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2020			3,2		3,2			3,2
		2021			0,1		0,1			0,1
		2023			11,6		11,6			11,6
		2024			6,3		6,3			6,3
		2025			6,1		6,1			6,1
	Sulfadoxine	2018	1238,4				1238,4			1238,4
		2019	816,4				816,4			816,4
		2020	935,8				935,8			935,8
		2021	1104,8				1104,8			1104,8
		2022	1404,3				1404,3			1404,3
		2023	1208,5				1208,5			1208,5
		2024	1347,3				1347,3			1347,3
		2025	833,6				833,6			833,6
	Sulfamethoxazol	2018	114,2		678,4		792,6			792,6
		2019	84,3		1138,5		1222,8			1222,8
		2020	90,7		1050,9		1141,6			1141,6
		2021	82,1		2297,6		2379,7			2379,7
		2022	60,4		2225,5		2285,9			2285,9
		2023	45,6		579		624,6			624,6
		2024	44,8		1503		1547,8			1547,8
		2025	20,8		613,6		634,4			634,4
	Trimethoprim	2018	603,6		5766,1		6369,7	7,4	7,4	6377,1
		2019	590,4		5387,3		5977,7	0	0	5977,7
		2020	223,2		5558		5781,2	15,1	15,1	5796,3
		2021	256,2		5470,9		5727,1	44,2	44,2	5771,3

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2022	312,2		3745,3		4057,5			4057,5
		2023	271,1		2014,5		2285,6	3,1	3,1	2288,7
		2024	305		2594		2899			2899
		2025	224,3		1993,9		2218,2	0	0	2218,2
Amino- (glyco)sides	Apramycin	2018			0,2		0,2	101,1	101,1	101,3
		2019						153,4	153,4	153,4
		2020			298		298	108,2	108,2	406,2
		2021			787,3		787,3	239,1	239,1	1026,4
		2022			291,1		291,1	141,3	141,3	432,4
		2023			454,9		454,9	123,2	123,2	578,1
		2024			2070,9		2070,9	87,3	87,3	2158,2
		2025			1453,8		1453,8	58,9	58,9	1512,7
	Framycetin	2018		15,8		1,4	17,2			17,2
		2019		24,3		0	24,3			24,3
		2020		26,4		0	26,4			26,4
		2021		33,1		0	33,1			33,1
		2022		23		0,9	23,9			23,9
		2023		10,1		0,3	10,4			10,4
		2024		23			23			23
		2025		25,7		0	25,7			25,7
	Gentamicin	2018	170,4			2,4	172,8			172,8
		2019	161,7			2,9	164,6			164,6
		2020	180,3			2,9	183,2			183,2
		2021	186,4			2,6	189			189
		2022	198,9			2,6	201,5			201,5

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2023	191,4			13,6	205			205
		2024	180,5			2,8	183,3			183,3
		2025	144,8			2,7	147,5			147,5
	Kanamycin	2018		53,2			53,2			53,2
		2019		102			102			102
		2020		83,8			83,8			83,8
		2021		67,1			67,1			67,1
		2022		48,1			48,1			48,1
		2023		11,3			11,3			11,3
		2024		40,4			40,4			40,4
		2025		36,2			36,2			36,2
	Neomycin	2018	3,8	28		13,1	44,9			44,9
		2019		19,9		10,5	30,4			30,4
		2020		22,4		0,5	22,9			22,9
		2021	10,9	21,7			32,6			32,6
		2022	184,6	21,5			206,1			206,1
		2023	173,2	16,8			190			190
		2024	214,4	17,4			231,8			231,8
		2025	189,7	13,3			203			203
	Paromomycin	2018	188,2		1871,2		2059,4			2059,4
		2019	160,5		1960,2		2120,7			2120,7
		2020	10,8		2059,9		2070,7			2070,7
		2021			2306,2		2306,2			2306,2
		2022			2257,7		2257,7			2257,7
		2023			2047,3		2047,3			2047,3

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2024			2308,3		2308,3			2308,3
		2025			2253,9		2253,9			2253,9
	Spectinomycin	2018	1362,5		3993,7		5356,2	4,4	4,4	5360,6
		2019	1265,1		5322,8		6587,9	0,6	0,6	6588,5
		2020	1420,4		4625,8		6046,2	1,1	1,1	6047,3
		2021	1298,1		4610,7		5908,8			5908,8
		2022	1228		4298,6		5526,6			5526,6
		2023	1095,1		3250,1		4345,2			4345,2
		2024	1250,7		4870		6120,7			6120,7
		2025	1162,6		5076,8		6239,4			6239,4
	Streptomycin dihydro	2018		6			6			6
		2019	14,4	7,3			21,7			21,7
		2020	4,8	8,9			13,7			13,7
		2021	5,3	8,6			13,9			13,9
		2022		8,7			8,7			8,7
		2023		10,9			10,9			10,9
		2024		8,6			8,6			8,6
		2025	0	7,4			7,4			7,4
Aminopenicillins	Amoxicillin	2018	3404,3		49061		52465,3	10670,8	10670,8	63136,1
		2019	3507,1		45878,6		49385,7	11112,1	11112,1	60497,8
		2020	3501,4		48956,3		52457,7	11180,2	11180,2	63637,9
		2021	3527,7		43099,7		46627,4	10007,1	10007,1	56634,5
		2022	1934,6		35529,7		37464,3	7043,8	7043,8	44508,1
		2023	3025,1		24389		27414,1	5164,3	5164,3	32578,4
		2024	3542,9		27049,2		30592,1	4164	4164	34756,1

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2025	2615,9		20812,8		23428,7	2944,5	2944,5	26373,2
	Ampicillin	2018	312,2	43,9			356,1			356,1
		2019	291,3	20,4			311,7			311,7
		2020	257,5	4,9			262,4			262,4
		2021	209,6	3,5			213,1			213,1
		2022	228,1	3,1			231,2			231,2
		2023	171,4	0,6			172			172
		2024	151,6	2,5			154,1			154,1
		2025	162,6	1,6			164,2			164,2
Aminopenicillins with BLI	Amoxicillin clavulanic acid	2018	101,2	0,1	923,8		1025,1			1025,1
		2019	84,2	8,9	1044,3		1137,4			1137,4
		2020	37,7	8,9	1084,3		1130,9			1130,9
		2021	88,9	11	1104,8		1204,7			1204,7
		2022	9,9	15	1077,5		1102,4			1102,4
		2023	78,4	10,7	1092,7		1181,8			1181,8
		2024	58,2	8,2	1203,7		1270,1			1270,1
		2025	14,2	0,7	1059,9		1074,8			1074,8
Cephalosporins 3G/4G	Cefoperazon	2018		5,4			5,4			5,4
		2019		4,2			4,2			4,2
		2020		3,6			3,6			3,6
		2021		3,5			3,5			3,5
		2022		3,1			3,1			3,1
		2023		2,7			2,7			2,7
		2024		3,3			3,3			3,3
		2025		2,4			2,4			2,4

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
	Cefquinome	2018		70,1			70,1			70,1
		2019		71,9			71,9			71,9
		2020		83,5			83,5			83,5
		2021		77,9			77,9			77,9
		2022		52,9			52,9			52,9
		2023		71,9			71,9			71,9
		2024		80,5			80,5			80,5
		2025		53,8			53,8			53,8
Lincosamides	Clindamycin	2018			135,8		135,8			135,8
		2019			136,3		136,3			136,3
		2020			149,5		149,5			149,5
		2021			147	0	147			147
		2022			142,6	0,1	142,7			142,7
		2023			143,7	0	143,7			143,7
		2024			136,5	0,1	136,6			136,6
		2025			127	0,1	127,1			127,1
	Lincomycin	2018	790,3	8,9	3661,9		4461,1	4,4	4,4	4465,5
		2019	730,5	9,3	4326,5		5066,3	0,6	0,6	5066,9
		2020	813,4	11,5	3833		4657,9	1,1	1,1	4659
		2021	758,5	10,8	3098,6		3867,9			3867,9
		2022	704,2	15,7	3312,1		4032			4032
		2023	620,8	4,6	1910,8		2536,2			2536,2
		2024	712,7	10,6	3367		4090,3			4090,3
		2025	656,9	6,9	3044,8		3708,6			3708,6
Macrolides	Gamithromycin	2018	39,3				39,3			39,3

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2019	36,7				36,7			36,7
		2020	16,2				16,2			16,2
		2021	14,3				14,3			14,3
		2022	9,6				9,6			9,6
		2023	3,9				3,9			3,9
		2024	7,4				7,4			7,4
		2025	4,8				4,8			4,8
	Spiramycin	2018			158,8		158,8			158,8
		2019			185,8		185,8			185,8
		2020			164,5		164,5			164,5
		2021			169,6		169,6			169,6
		2022			162,7		162,7			162,7
		2023			112,3		112,3			112,3
		2024			110,4		110,4			110,4
		2025			129,6		129,6			129,6
	Tildipirosin	2018	49,2				49,2			49,2
		2019	47,2				47,2			47,2
		2020	37,3				37,3			37,3
		2021	20,6				20,6			20,6
		2022	27,3				27,3			27,3
		2023	20,4				20,4			20,4
		2024	21,5				21,5			21,5
		2025	23,8				23,8			23,8
	Tilmicosin	2018	71,3		2051,2		2122,5	676	676	2798,5
		2019	54,3		2318,5		2372,8	546	546	2918,8

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2020	68,1		2600,9		2669	561,1	561,1	3230,1
		2021	86,2		1819,5		1905,7	468	468	2373,7
		2022	61,6		2367,5		2429,1	76	76	2505,1
		2023	55,5		2606		2661,5	184	184	2845,5
		2024	85,9		3238,9		3324,8	196,2	196,2	3521
		2025	50,3		2900,7		2951	160	160	3111
	Tulathromycin	2018	128,1				128,1			128,1
		2019	119,5				119,5			119,5
		2020	113,7				113,7			113,7
		2021	146				146			146
		2022	102,7				102,7			102,7
		2023	122,7				122,7			122,7
		2024	175,4				175,4			175,4
		2025	137,7				137,7			137,7
	Tylosin	2018	724,3		8316		9040,3	140,9	140,9	9181,2
		2019	587,8		7087		7674,8	133,8	133,8	7808,6
		2020	624,8		9039,5		9664,3	85,7	85,7	9750
		2021	701		10377		11078	175	175	11253
		2022	682,8		8987,5		9670,3	20	20	9690,3
		2023	521,8		9695,8		10217,6	55	55	10272,6
		2024	603		11397		12000	10	10	12010
		2025	534,3		11334		11868,3	0	0	11868,3
	Tylvalosin	2018			46,2		46,2	14,4	14,4	60,6
		2019			37,5		37,5	1,7	1,7	39,2
		2020			0		0	3,3	3,3	3,3

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2021						6,8	6,8	6,8
		2022			14		14			14
		2023			40,3		40,3			40,3
		2024			32,1		32,1			32,1
		2025			18,3		18,3			18,3
Other	Fusidic acid	2018				1,6	1,6			1,6
		2019				0	0			0
		2020				0	0			0
		2021				0	0			0
		2022				3,8	3,8			3,8
		2023				3,6	3,6			3,6
		2024				3	3			3
		2025				3,2	3,2			3,2
	Rifaximin	2018		21,3			21,3			21,3
		2019		22,3			22,3			22,3
		2020		22,6			22,6			22,6
		2021		21,2			21,2			21,2
		2022		21,9			21,9			21,9
		2023		23,2			23,2			23,2
		2024		20,6			20,6			20,6
		2025		17			17			17
Polymyxins	Colistin	2018	39,2		3180,9		3220,1	390	390	3610,1
		2019	33,5		2928,5		2962	71,5	71,5	3033,5
		2020	33,3		2721,7		2755	6,2	6,2	2761,2
		2021	28,9		2430,2		2459,1			2459,1

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2022	32,4		1108,5		1140,9			1140,9
		2023	24,7		1129,9		1154,6			1154,6
		2024	28,4		1355,5		1383,9			1383,9
		2025	26,6		1233,3		1259,9	0	0	1259,9
	Polymyxin B	2018				0,7	0,7			0,7
		2019				0,9	0,9			0,9
		2020				1	1			1
		2021				0,8	0,8			0,8
		2022				0,8	0,8			0,8
		2023				0,9	0,9			0,9
		2024				1	1			1
		2025				1	1			1
Tetracyclines	Chlortetracycline	2018			132,9	551,7	684,6			684,6
		2019			76	512,2	588,2			588,2
		2020			133,8	502,5	636,3			636,3
		2021			87,9	477,5	565,4			565,4
		2022			67	556,5	623,5			623,5
		2023			104,1	403,1	507,2			507,2
		2024			56,1	413,6	469,7			469,7
		2025			40,7	391	431,7			431,7
	Doxycycline	2018			34545		34545	5772,4	5772,4	40317,4
		2019			26124,4		26124,4	4815	4815	30939,4
		2020			23487,3		23487,3	4508,5	4508,5	27995,8
		2021			22957,7		22957,7	3750	3750	26707,7
		2022			15234,4		15234,4	1465	1465	16699,4

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2023			10114,5		10114,5	1265	1265	11379,5
		2024			11485,9		11485,9	1527,8	1527,8	13013,7
		2025			12862,3		12862,3	1477,5	1477,5	14339,8
	Oxytetracycline	2018	5037,3		8419,5	67,6	13524,4	3,7	3,7	13528,1
		2019	3652,3		4865,6	60,7	8578,6	0	0	8578,6
		2020	4768,9		6315,2	64,8	11148,9	0	0	11148,9
		2021	4015,5		5268	57,4	9340,9			9340,9
		2022	3690,1		5419,2	55	9164,3			9164,3
		2023	1981,1		3969,6	59,8	6010,5			6010,5
		2024	688,1		4376	55,6	5119,7			5119,7
		2025	710,5		2960,8	44,4	3715,7			3715,7
Cephalosporins 3G/4G	Cefovecin	2018	9,1				9,1			9,1
		2019	9,4				9,4			9,4
		2020	9,8				9,8			9,8
		2021	9				9			9
		2022	8,5				8,5			8,5
		2023	7,2				7,2			7,2
		2024	5,8				5,8			5,8
		2025	3,9				3,9			3,9
	Cefquinome	2018	5,5				5,5			5,5
		2019	3,4				3,4			3,4
		2020	1,8				1,8			1,8
		2021	1,3				1,3			1,3
		2022	2				2			2
		2023	1,4				1,4			1,4

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals: Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2024	1,3				1,3			1,3
		2025	0,7				0,7			0,7
	Ceftiofur	2018	57,4				57,4			57,4
		2019	46,1				46,1			46,1
		2020	44,9				44,9			44,9
		2021	34,9				34,9			34,9
		2022	32,6				32,6			32,6
		2023	30,3				30,3			30,3
		2024	32,7				32,7			32,7
		2025	25,5				25,5			25,5
Quinolones	Danofloxacin	2018	8,4				8,4			8,4
		2019	6,5				6,5			6,5
		2020	7,3				7,3			7,3
		2021	5,8				5,8			5,8
		2022	6,5				6,5			6,5
		2023	3,2				3,2			3,2
		2024	3,3				3,3			3,3
		2025	2,3				2,3			2,3
	Enrofloxacin	2018	58,4		245,6		304			304
		2019	46		326,2		372,2			372,2
		2020	55,5		360,7		416,2			416,2
		2021	45,1		244,7		289,8			289,8
		2022	57,7		260,2		317,9			317,9
		2023	44,7		285,8		330,5			330,5
		2024	55,1		202,6		257,7			257,7

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Intramammary	Oral	Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
		2025	36,6		170,2		206,8			206,8
	Flumequine	2018			519,5		519,5			519,5
		2019			516,5		516,5			516,5
		2020			845		845			845
		2021			375,5		375,5			375,5
		2022			773,5		773,5			773,5
		2023			598		598			598
		2024			503,5		503,5			503,5
		2025			907		907			907
	Marbofloxacin	2018	56,6		14,3	1,8	72,7			72,7
		2019	50,6		14,9	2	67,5			67,5
		2020	62,9		17,3	2	82,2			82,2
		2021	55,3		14	1,7	71			71
		2022	55,1		12,7	1,5	69,3			69,3
		2023	37,8		10,6	1,2	49,6			49,6
		2024	27,5		9,1	1,3	37,9			37,9
		2025	29,6		5,3	0,5	35,4			35,4
	Orbifloxacin	2018				2,9	2,9			2,9
		2019				3,2	3,2			3,2
		2020				3,9	3,9			3,9
		2021				3,3	3,3			3,3
		2022				3,3	3,3			3,3
		2023				3,2	3,2			3,2
		2024				2,7	2,7			2,7
		2025				1,6	1,6			1,6

Class[1]	Antibacterial substance[2]	Year	Pharmaceuticals Injection	Pharmaceuticals Intramammary	Pharmaceuticals Oral	Pharmaceuticals Other	Total Pharmaceuticals (kg)	Premix	Total Premix (kg)	Total kg antibacterials (Pharmaceuticals Injection + Premixes)
	Pradofloxacin	2018			2,1		2,1			2,1
		2019			1,8		1,8			1,8
		2020			2,1		2,1			2,1
		2021			1,3		1,3			1,3
		2022			1,2		1,2			1,2
		2023			0,9		0,9			0,9
		2024			0,7		0,7			0,7
		2025			0,5		0,5			0,5

[1] The colours reflect the AMCRA colour code of the active substances and associated classes.

[2] 3rd and 4th generation cephalosporins are classified as orange when used intramammary, and as red when used systemically.