

PEMV: Interoperable Big Data for Veterinary Prescription and Antimicrobial Use

Insights from Portugal's National Platform

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Context

The Portuguese Electronic Veterinary Prescription Platform (**PEMV**) is a national digital infrastructure designed to collect, harmonize, and analyse veterinary prescription data. It enables big data analytics and seamless interoperability with European regulatory systems, providing a comprehensive overview of all medicines consumed in the national territory and supporting antimicrobial stewardship and evidence-based policy.

System Scope

Covers all administered and dispensed medicines, as well as manual prescriptions digitally reported at point of sale.

Data is completed by prescribers in the platform, ensuring national-level visibility across species, production stages, indications and regions.

+ Criar

⚙️ Ação

999999117250732025111

Tipologia
Prescrição Animal de Exploração

Modalidade
☒ Prescrição ☐ Prescrição + Dispensado/Administrado ☐ Somente Dispensado/Administrado

Geral

Exploração / Lotes de Animais

Medicamentos Prescritos

[7202192] Cevac Meta L liofilizado para suspensão para futuras poedeiras (10 frascos de 5000 doses)
Administrar por Via oral, 0.5 g por Kg PV
1 Unidades (10-10-2025)

POR DISPENSAR

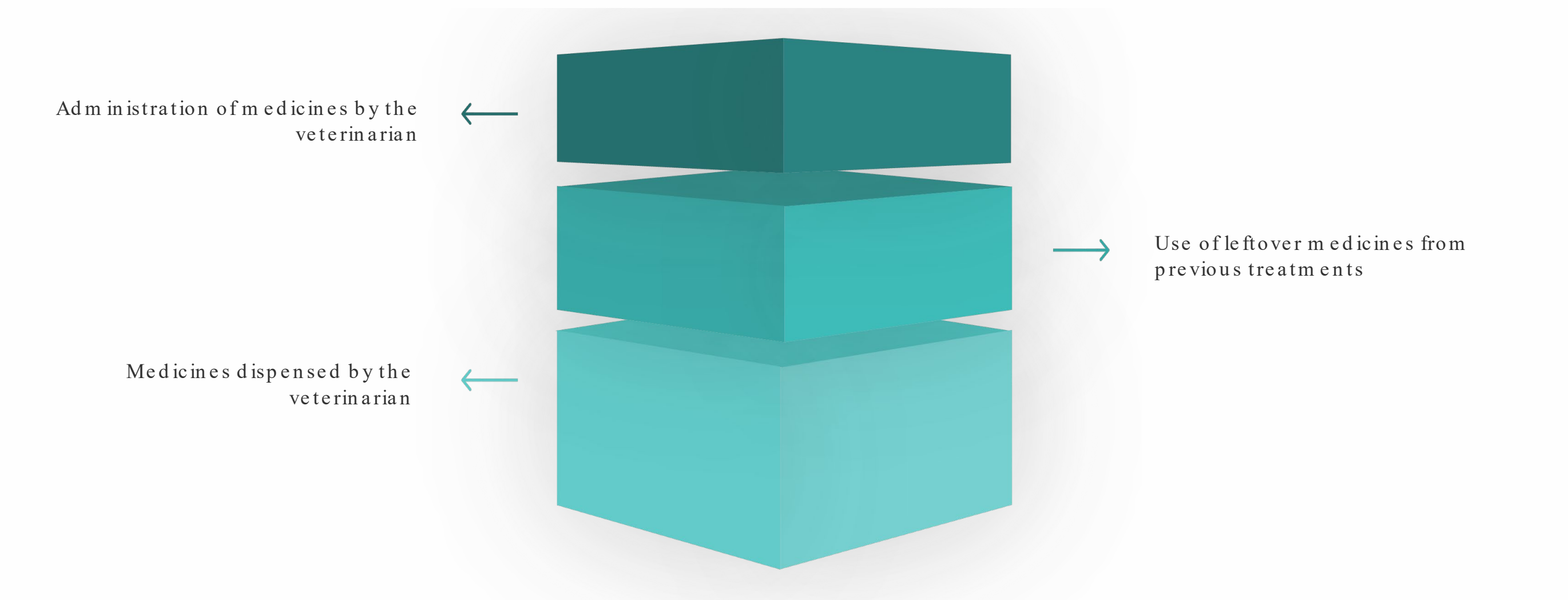
Aplicação Terapêutica

Auditoria



One Stop Shop

PEMV isn't just a prescription system ,it also encompasses,in the same act of prescription:



Support for all scenarios

PEMV supports the following type of prescriptions:

Type	Animal	Type of Prescription	Options
Electronic	Companion Animal	General	Prescribed, Administered and Dispensed Medicines
Electronic	Companion Animal	Psychotropic Substances	
Electronic	Production Animals	General	
Electronic	Production Animals	Direct Acquisition for Production Animals	
Electronic	Production Animals	Psychotropic Substances	
Electronic	Production Animals	Medicated Feed	Prescribed
Manual	Production Animals	General	
Manual	Production Animals	Medicated Feed	
Manual	Companion Animal	General	
Manual	Companion Animal/ Production Animals	Psychotropic Substances	
Manual	Acquisition for Prescriber	Psychotropic Substances	For own clinical use

Pharmacy / POS Portal

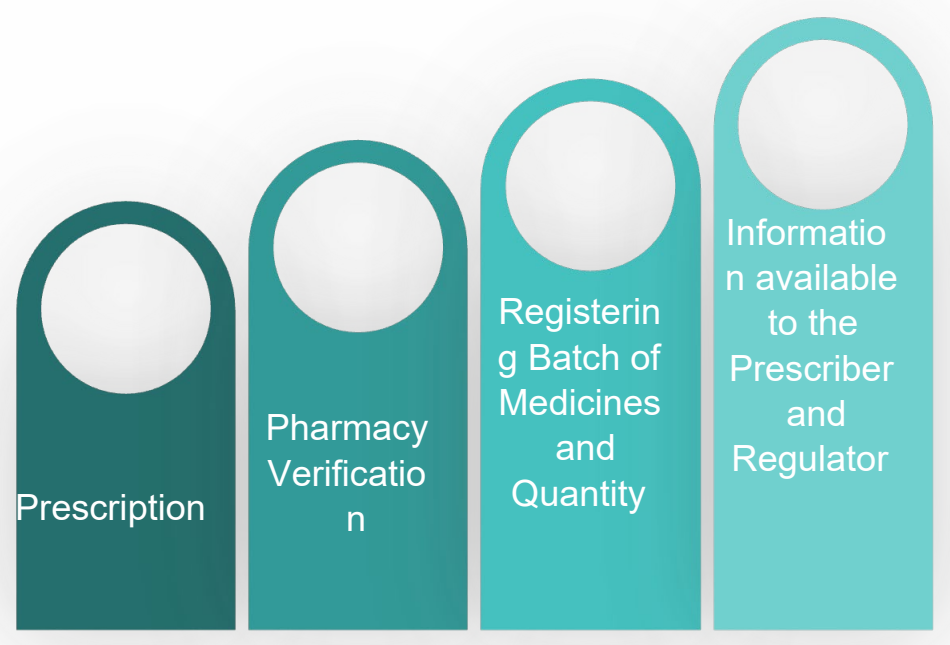


Sales of medicines issued under an electronic prescription are registered directly through the Portal. This enables phased supply of medicines, including just-in-time dispensing for chronic conditions, promoting prudent medicine use and reducing unnecessary stock and wastage.



Manual prescriptions are converted into electronic records at the point of sale, capturing the medicines prescribed, quantities, animal owner, batch numbers and other relevant information. The electronic record is then submitted to the prescriber to complete the remaining required fields.

Once validated, these prescriptions may be duplicated and renewed electronically, and they remain accessible to prescribers for consultation. They also become part of the Animal History and the Exploration record, ensuring full traceability and continuity of care.



Why it works

These interaction pathways enable veterinarians to comply with legal obligations for recording medicines administered or dispensed during the clinical act, including cases such as telemedicine where leftover medicines may be used. They also allow owners or keepers to correctly record the use of medicines under their responsibility.

The system supports:

Clinical Approach Ability to duplicate prescriptions, for instance in prophylactic farm health plans such as vaccination and deworming schedules	Faster Interactions Automatic pre-population of withdrawal periods. A uniform workflow across all interaction types, simplifying procedures for all users.	Ease of Use Integration of prescribed, dispensed and administered medicines in the same prescription
Relevant Information Prescribers can consult all informations present in the SPC in a structured manner without leaving the system	Data Exploration Explore data right from the prescription system in Graphs and Pivot Tables built-in.	Integration Prescriptions status of sale, date and other details are presented to the prescriber allowing for better monitoring of treatments.

Why It Matters

A centralised, interoperable data space empowers prescribers, producers and regulators.

Clinical decisions improve

Stewardship is
operationalised, not
aspirational

Regulatory oversight
strengthens

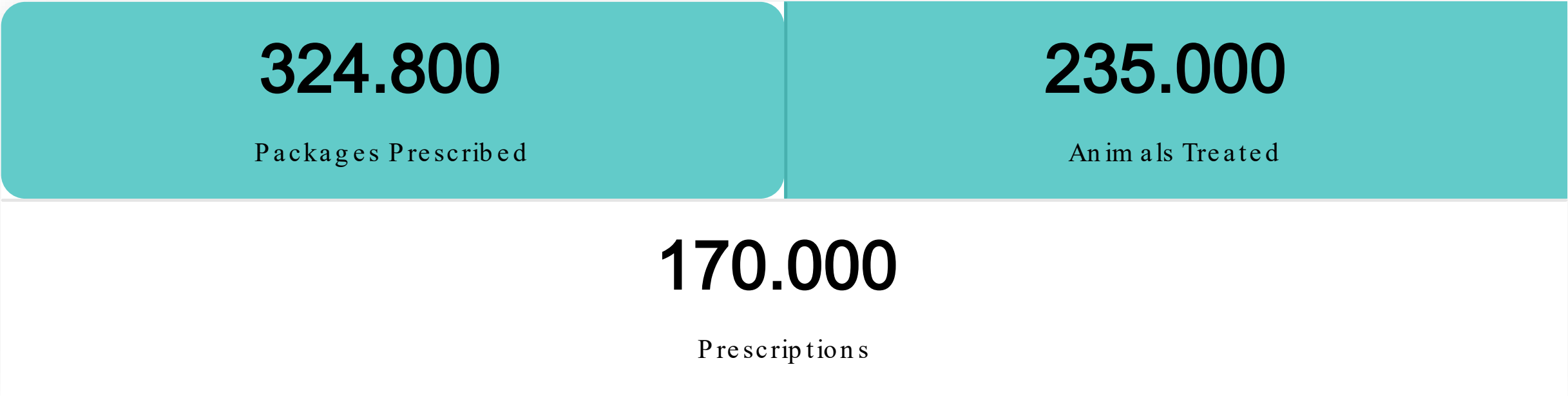
Data Overview Food Producing Animals 2024



Species: poultry, pigs, bovines, ovines, caprines, rabbits, fish

 Aligned with EU standards to ensure cross-border benchmarking and integration with EU data systems.

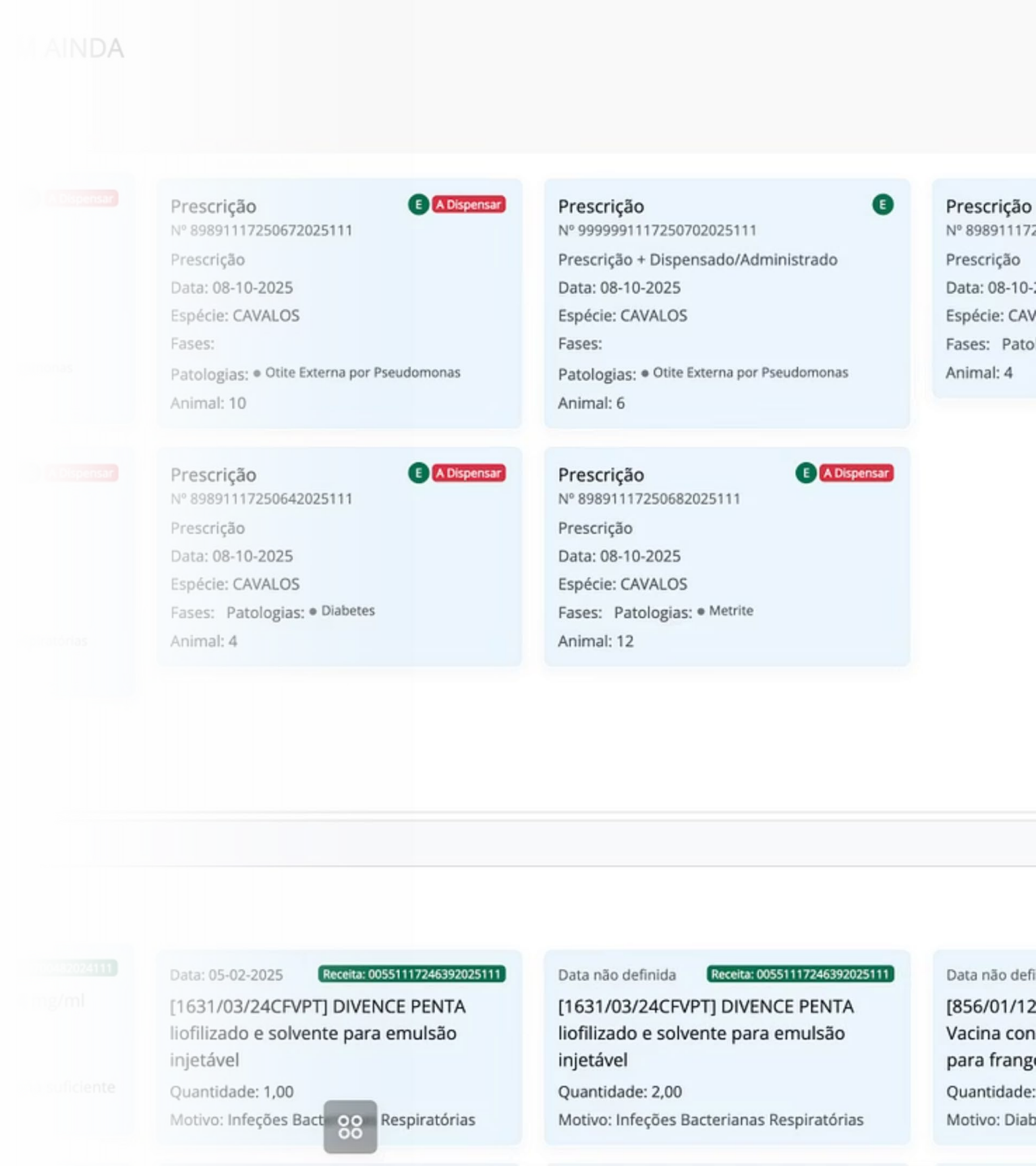
Data Overview Companion Animals Animals 2024



Species: Dogs, Cats, Other

Clinical Decision Support

Accessible repository of prescription records at farm and animal level enables prescribers to review historical data, patterns and risk factors, reinforcing data-driven clinical judgement.



Use Indication Framework

The platform requires clear classification of the intended use of each veterinary medicine. Prescribers must specify:



Cascade use

Indication that the medicine is being prescribed under the legal cascade mechanism, ensuring transparency and traceability when authorised veterinary medicines are not suitable or available, including the prescriptions of **medicinal products for human use**.



Prophylactic use

Identification of prescriptions intended to prevent disease in animals not yet showing clinical signs, in strict compliance with regulatory limitations on preventive antimicrobial use.



Metaphylactic use

Declaration of treatments administered to a group of animals where some are clinically affected and others are at high risk, supporting targeted intervention and stewardship monitoring.



Condition to be treated or prevented

Recording the specific disease or physiological condition associated with the prescription, enabling clinical accountability, data analysis, and evidence-based health planning at farm and national level.

Specie

SUÍNOS

No. Treated Animals

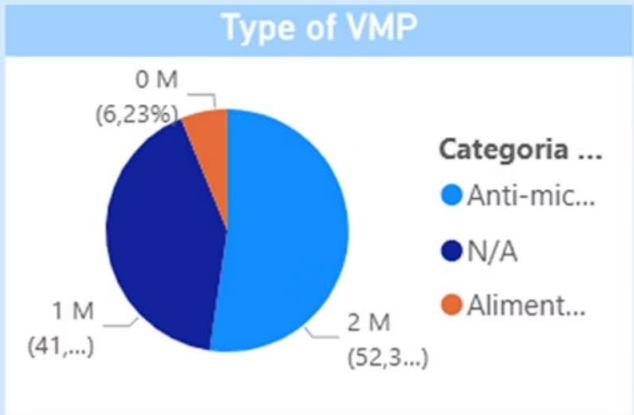
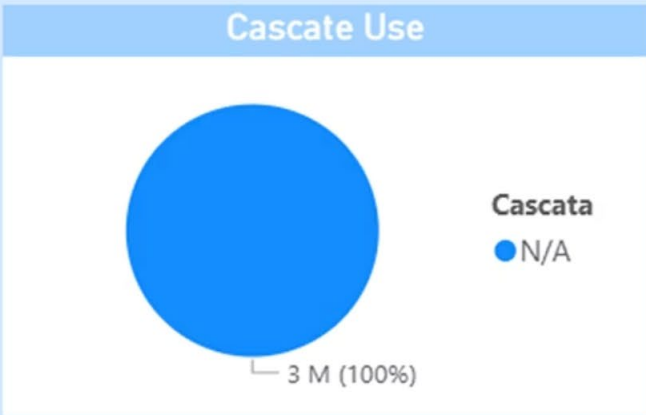
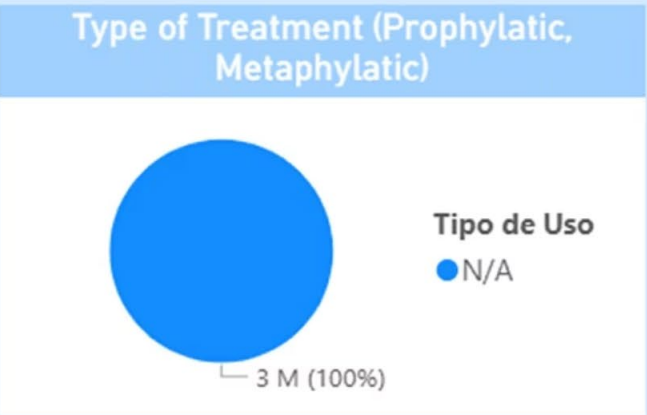
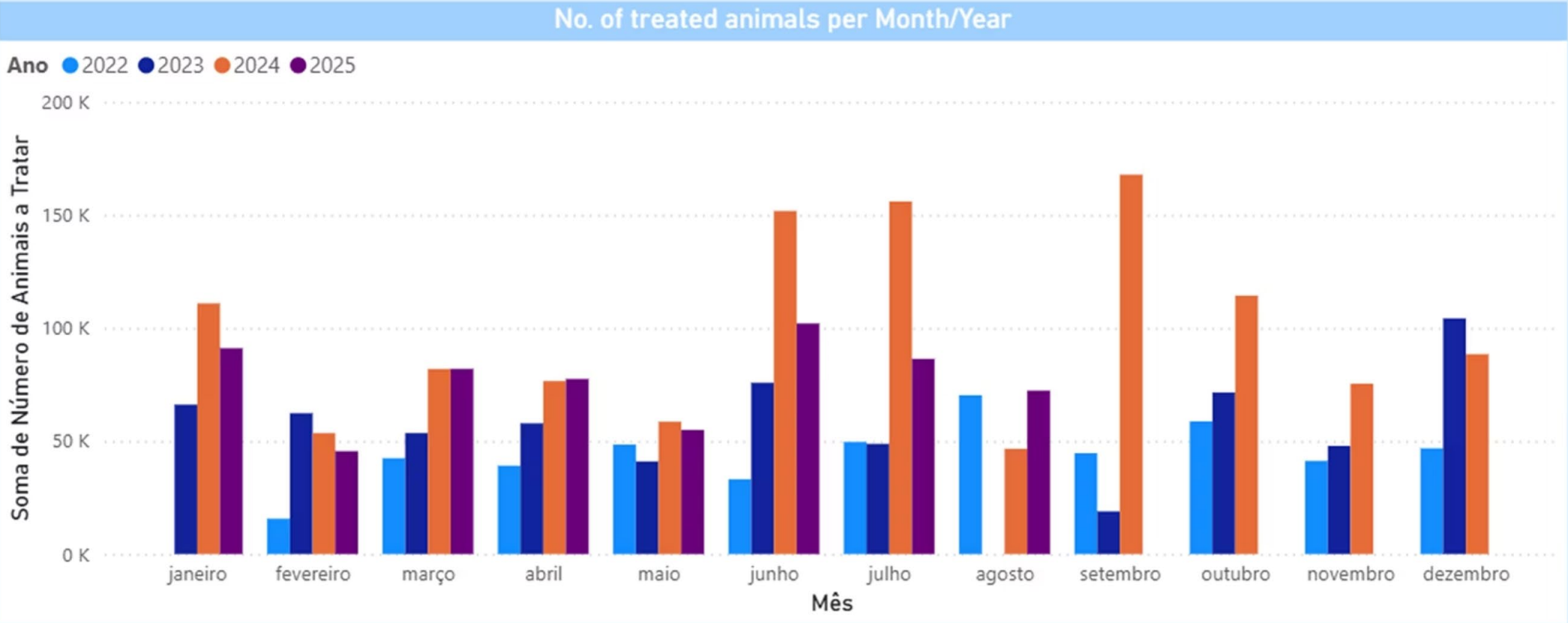
3 M

No. of Prescribers

1

Date of Last Update

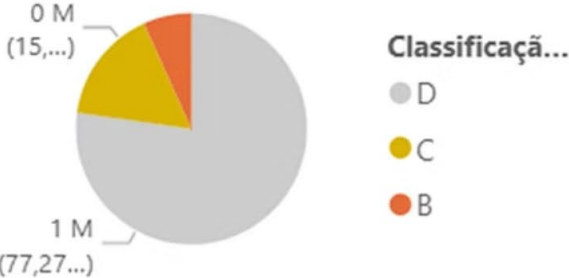
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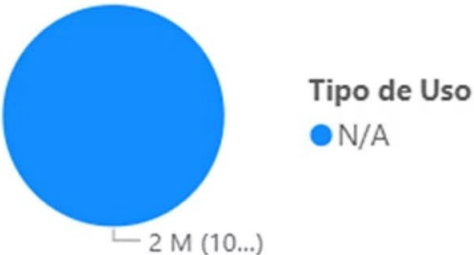
No. Treated Animals

2 M

AMEG Category



Type of Treatment (Metaphylatic, Prophylatic)



Production Phase

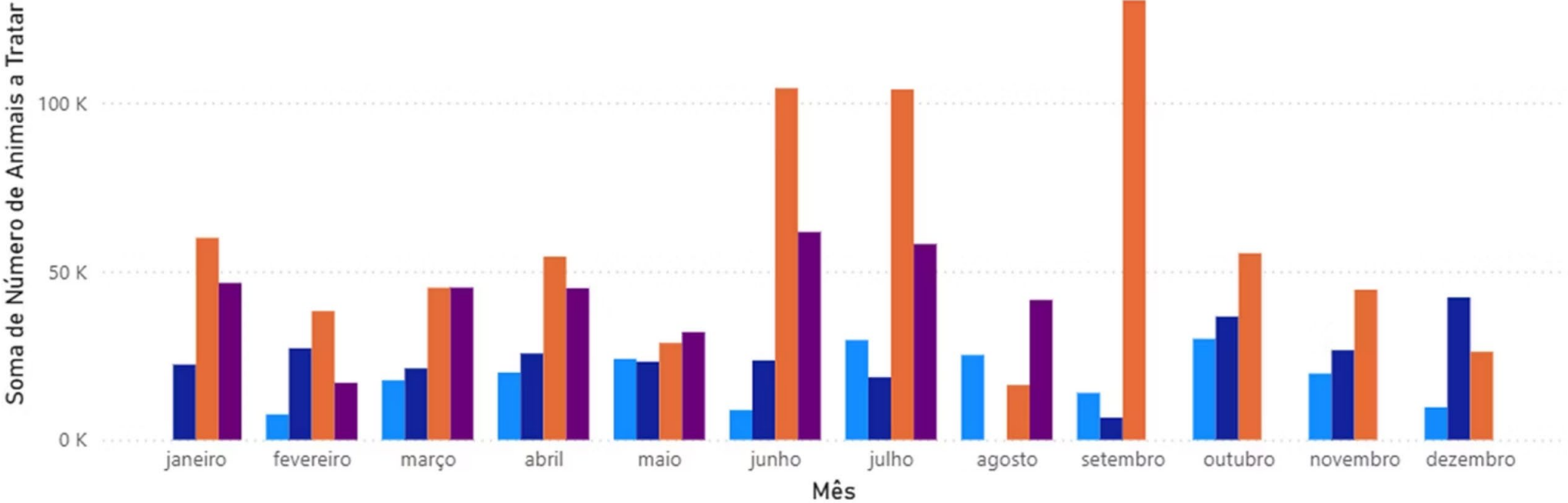
Cria, Recria, Acabamento	Fase 1
Cria, Recria, Acabamento, Porcas R...	Leitões
Cria, Recria, Porcas Reprodutoras	N/A

Treatment

agalaxia, Anti-inflamatório, Mamite, Doença respiratória, Prevenção de anemia e coccidiose, Septicemias, anti-inflamatorio.	agalaxia, mamite, Doenças respiratórias, Septicemias, prevenção de PCV2, Micoplasma.	Agalaxia, Septicemias, Anemia Ferropénica.	Anti-inflamatório, Alergia, Micoplasma, DRS, síndrome MMA.
agalaxia. Indução	agalaxia, mamite, infecção pele,	antibiotico.	Anti-inflamatório, Alergia, Síndrome MMA, influenza, Choque.

No. of Treated Animals per Month Year Tratados por Mês e Ano

Ano 2022 2023 2024 2025

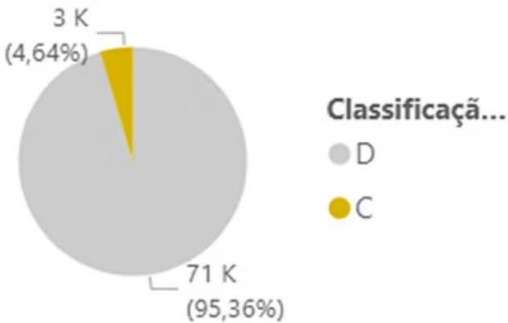


Limpar todas as segmentações de dados

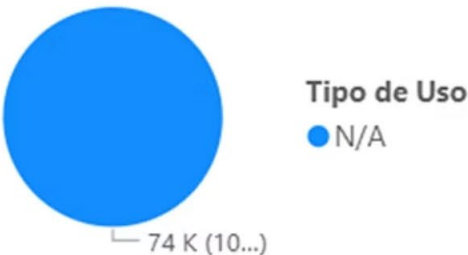
No. Treated Animals

74 K

AMEG Category



Type of Treatment (Metaphylatic, Prophylatic)



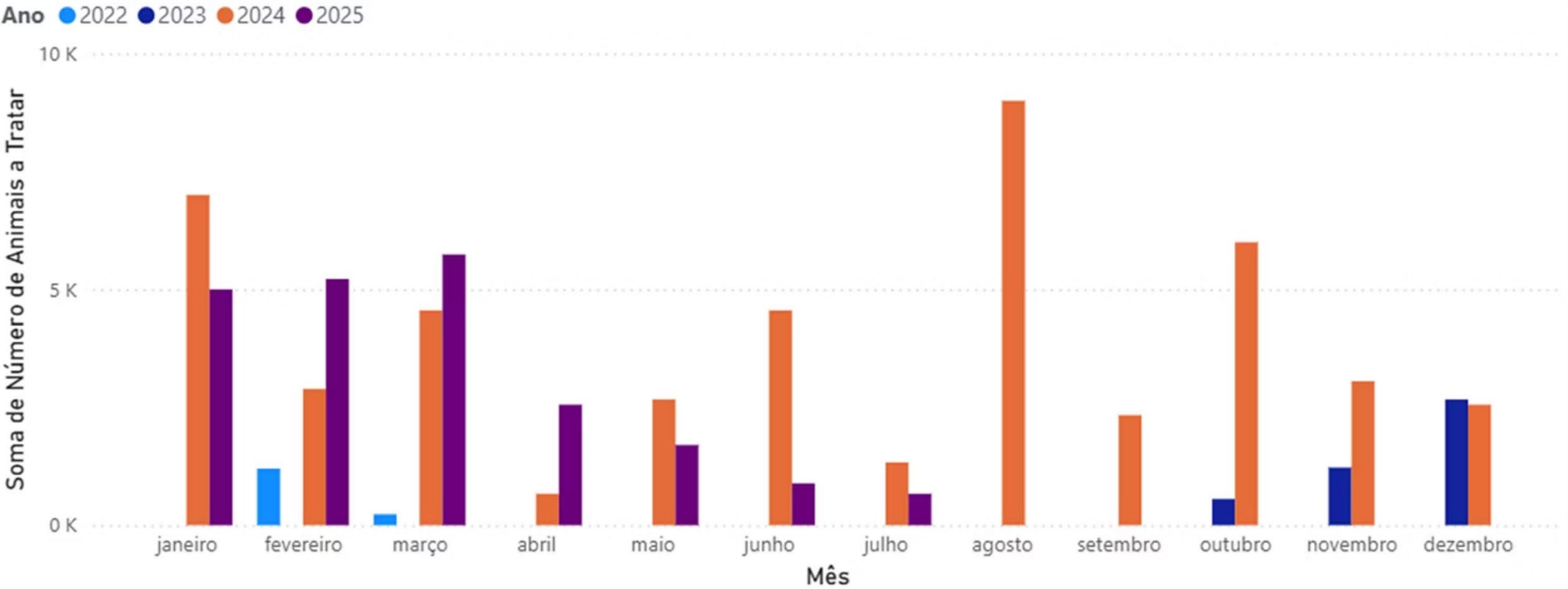
Production Phase

Cria, Recria, Acabamento	Fase 1
Cria, Recria, Acabamento, Porcas R...	Leitões
Cria, Recria, Porcas Reprodutoras	N/A

Treatment

Enterite.	prevenção de doença respiratória.
Infeções Bacterianas Respiratórias.	PREVENÇÃO DOENÇA RESPIRATORIA.
Pasteurella multocida, Anti-inflamatório, DRS, infecção pele.	Prevenção Doença Respiratória.

No. of Treated Animals per Month Year Tratados por Mês e Ano

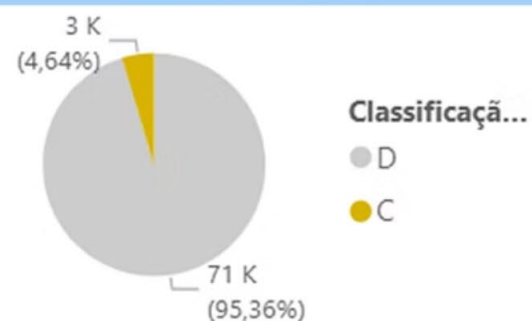


Limpar todas as segmentações de dados

No. Treated Animals

74 K

AMEG Category



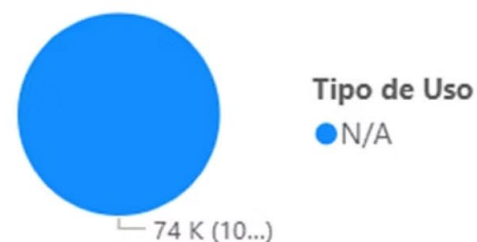
Production Phase

Cria, Recria, Acabamento	Fase 1
Cria, Recria, Acabamento, Porcas R...	Leitões
Cria, Recria, Porcas Reprodutoras	N/A

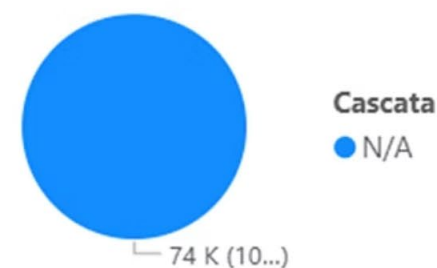
Treatment

Enterite.	prevenção de doença respiratória.
Infeções Bacterianas Respiratórias.	PREVENÇÃO DOENÇA RESPIRATORIA.
Pasteurella multocida, Anti-inflamatório, DRS, infecção pele.	Prevenção Doença Respiratória.

Type of Treatment (Metaphylatic, Prophylatic)



Cascade



Limpar todas as segmentações de dados

Medicamento

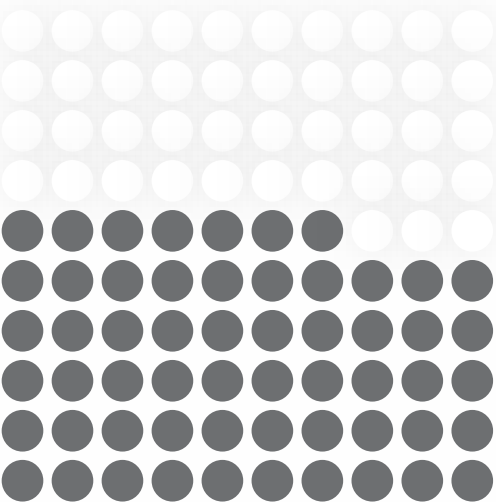
Substância Ativa/Designação

N.º de Unidades

Forma Farmaceutica

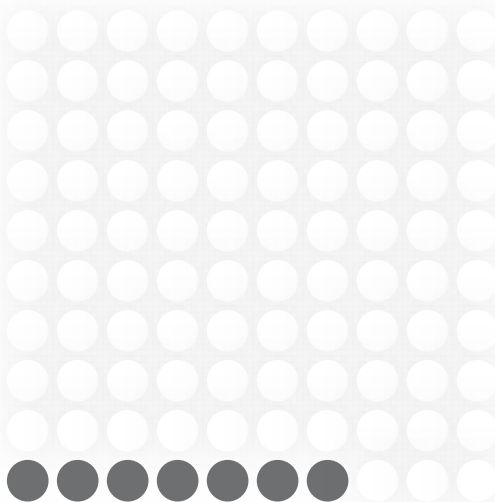
Maymoxi 10 Pré-mistura medicamentosa para suínos	Amoxicilina Tri-Hidratado	1	Pré-mistura para alimento medica
Maymoxi 10 Pré-mistura medicamentosa para suínos	Amoxicilina Tri-Hidratado	1	Pré-mistura para alimento medica
Maymoxi 10 Pré-mistura medicamentosa para suínos	Amoxicilina Tri-Hidratado	1	Pré-mistura para alimento medica
Total		83	

Antimicrobial Use Patterns



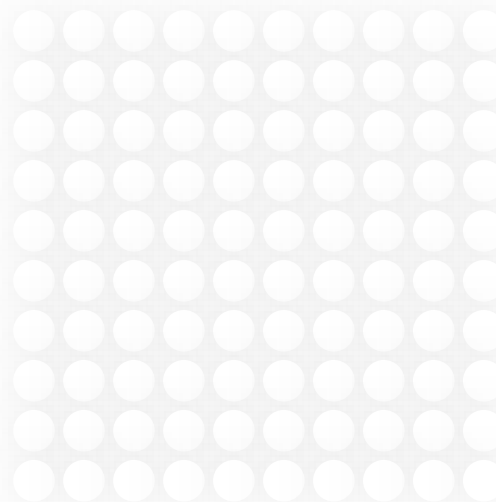
57.3%

Metaphylactic treatments



7.3%

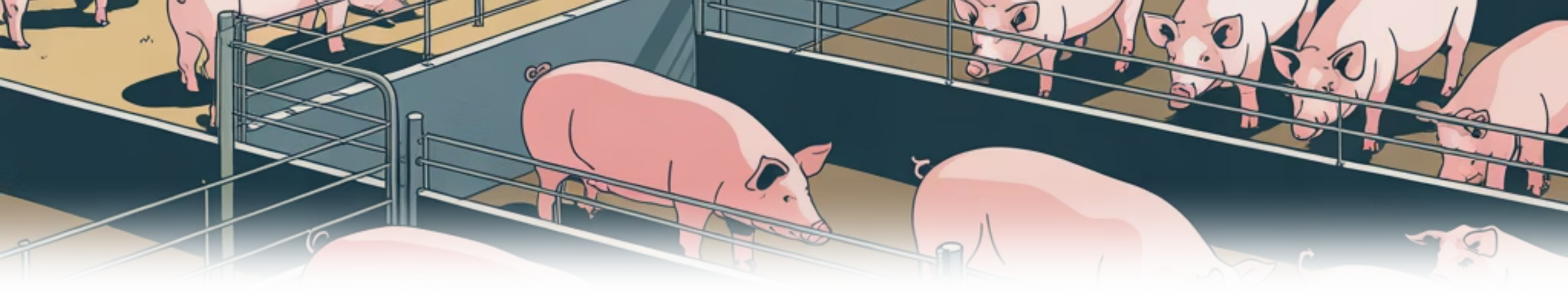
Cascade prescriptions



0.04%

Prophylaxis

Illustrates regulatory impact and responsible antimicrobial use whilst preserving clinical flexibility.



Production Stage Insights

Stratification by finishing, adult, gestating, lactating and juvenile animals.

In pigs, metaphylaxis predominates and cascade use stands at 0.9 %.

These patterns support targeted interventions and more precise stewardship strategies.

Disease Cluster Analysis



77.5%

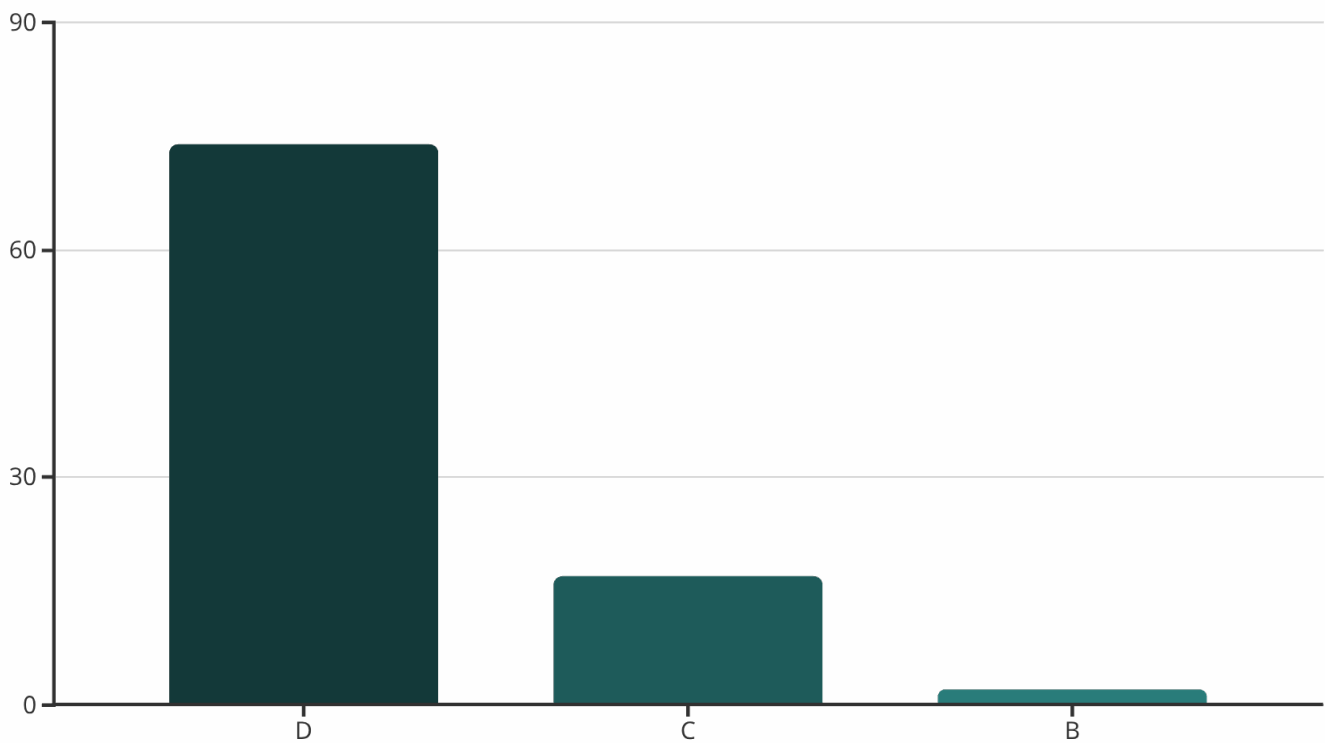
of treated swine

Digestive and respiratory indications represent 77.5 per cent of treated swine.

Such clustering supports focused disease-prevention programmes and refinement of biosecurity measures.



Regional and Substance Analysis



Nationwide benchmarking enables regional stewardship.

Rx

Most Commonly Prescribed Antibacterial substances

Amoxicillin, lincomycin, doxycycline, tilmicosin, enrofloxacin

AMEG

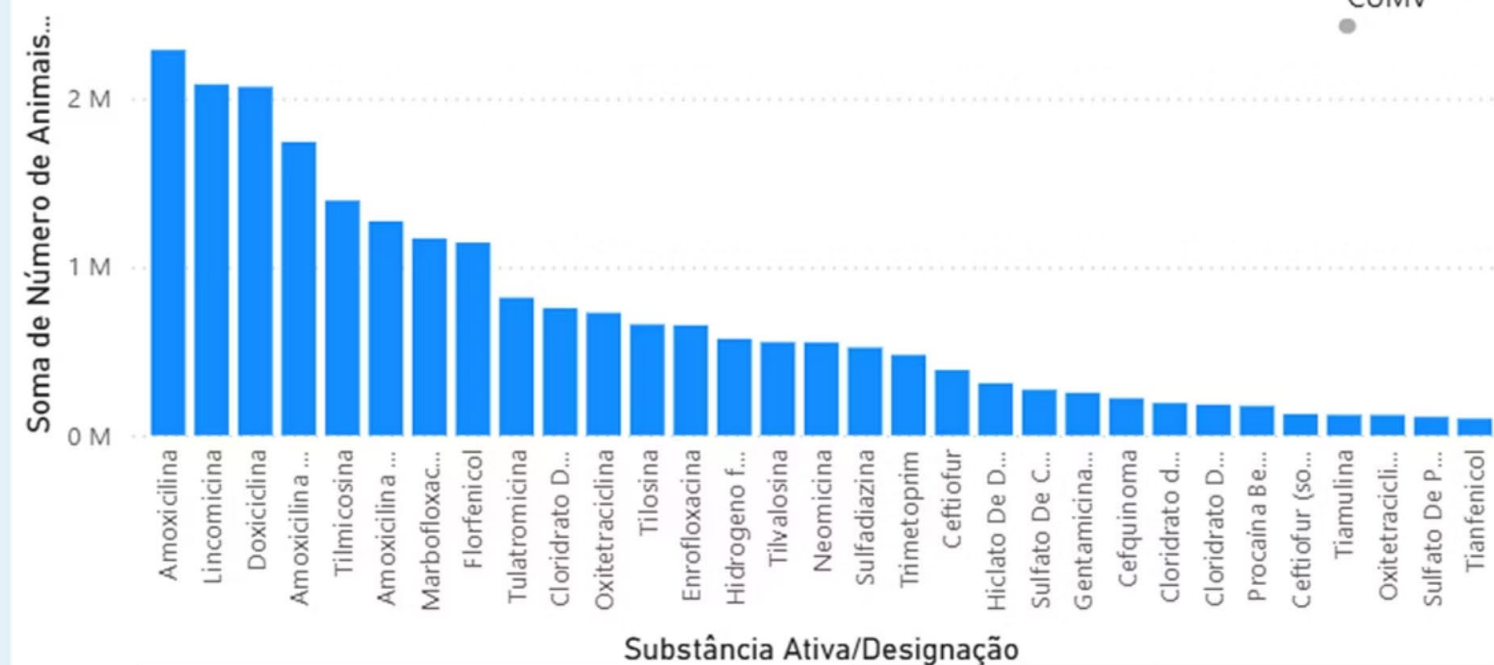
AMEG profile

AMEG classification showing 52–74% of prescriptions in category D (lowest risk), 17–38% in category C, and 2–21% in category B (highest risk).

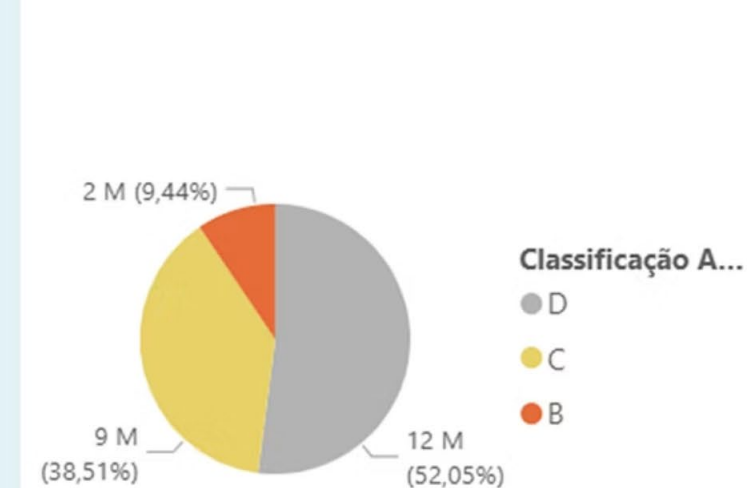
Production phase

- Acabamento
- Adulto
- Bácoros c/ p.v. entre 20 e 50Kg
- Cria
- Fase 1
- Fase 2
- Fêmea Reprodutiva Madura
- Gestante
- Leitões
- Leitões com p.v. (peso vivo) < 20Kg
- Marrã Reprodutivamente ...

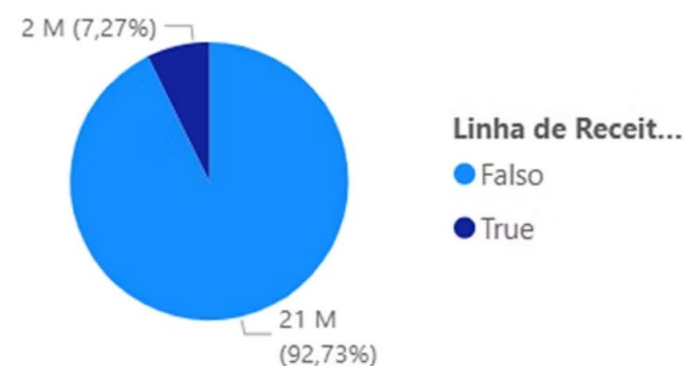
No. of treated animals/ Active Substance



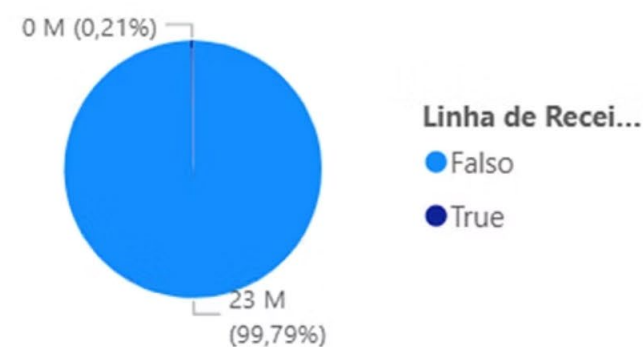
AMEG classification



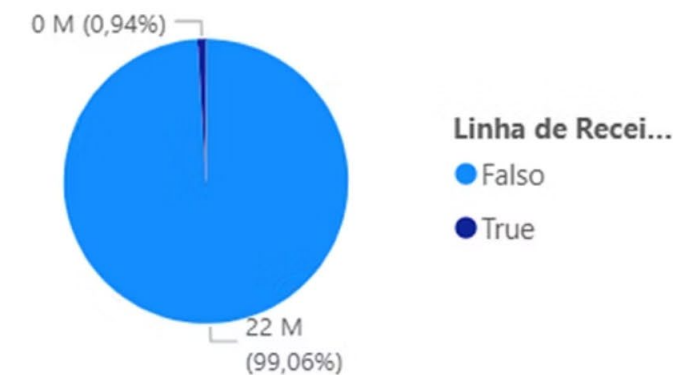
Metaphylatic Use



Prophylatic Use



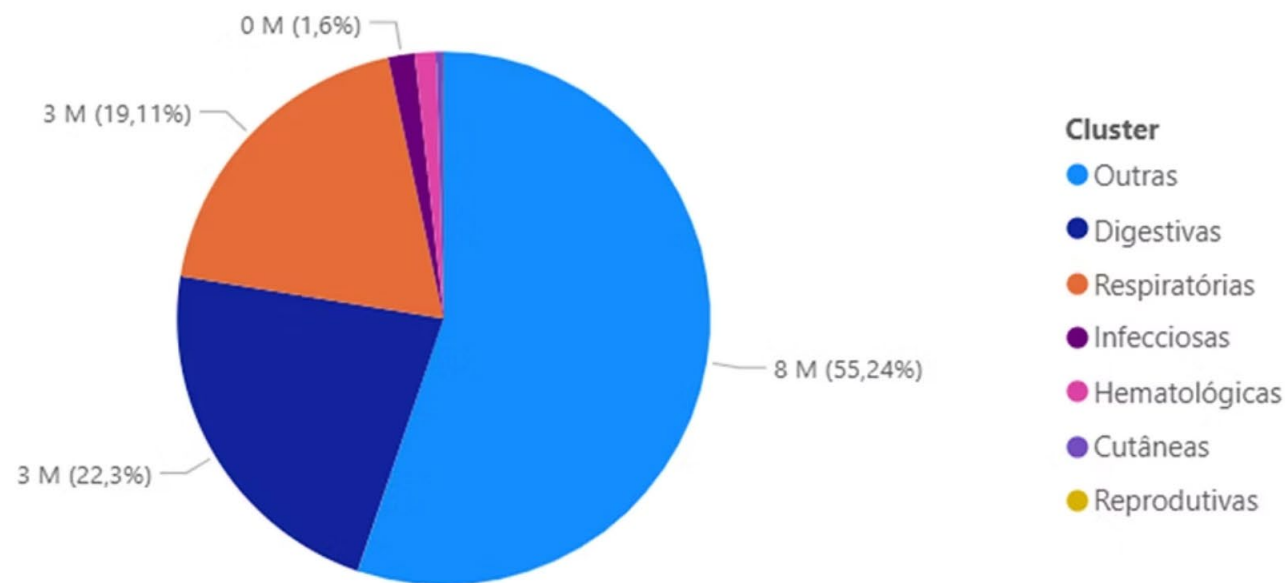
Cascade Use



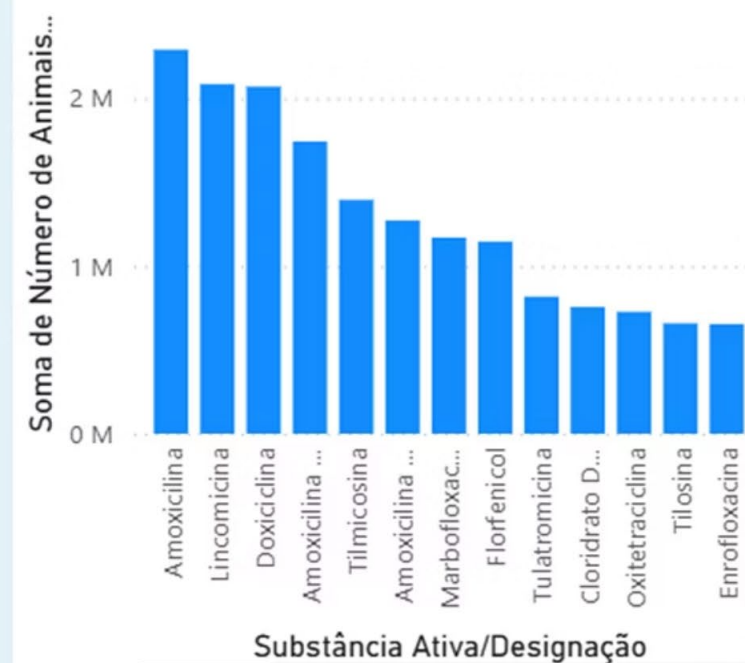
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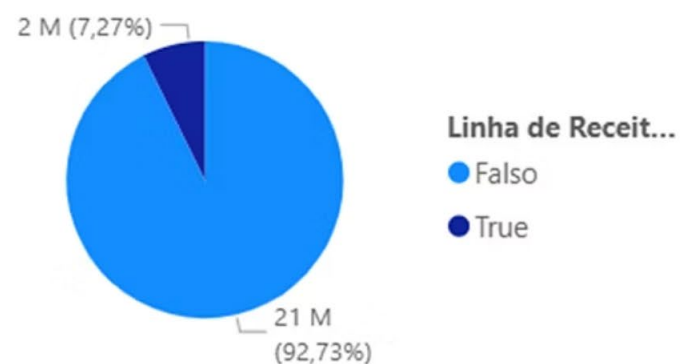
Disease Clusters



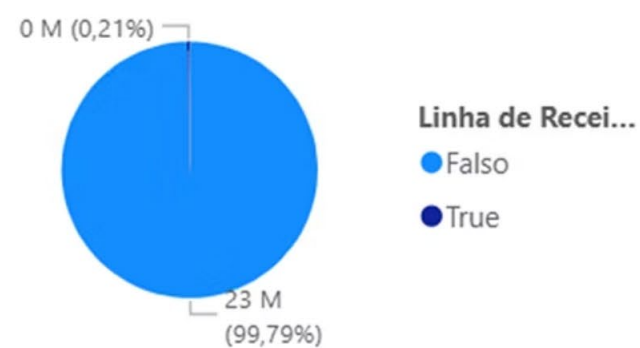
No. of treated animals/ Active Substance



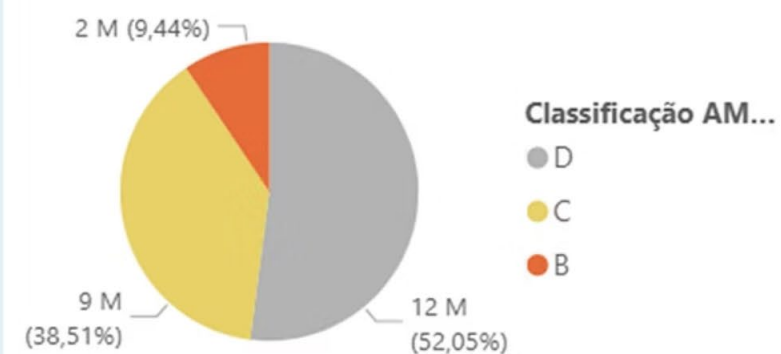
Metaphylatic Use



Prophylatic Use



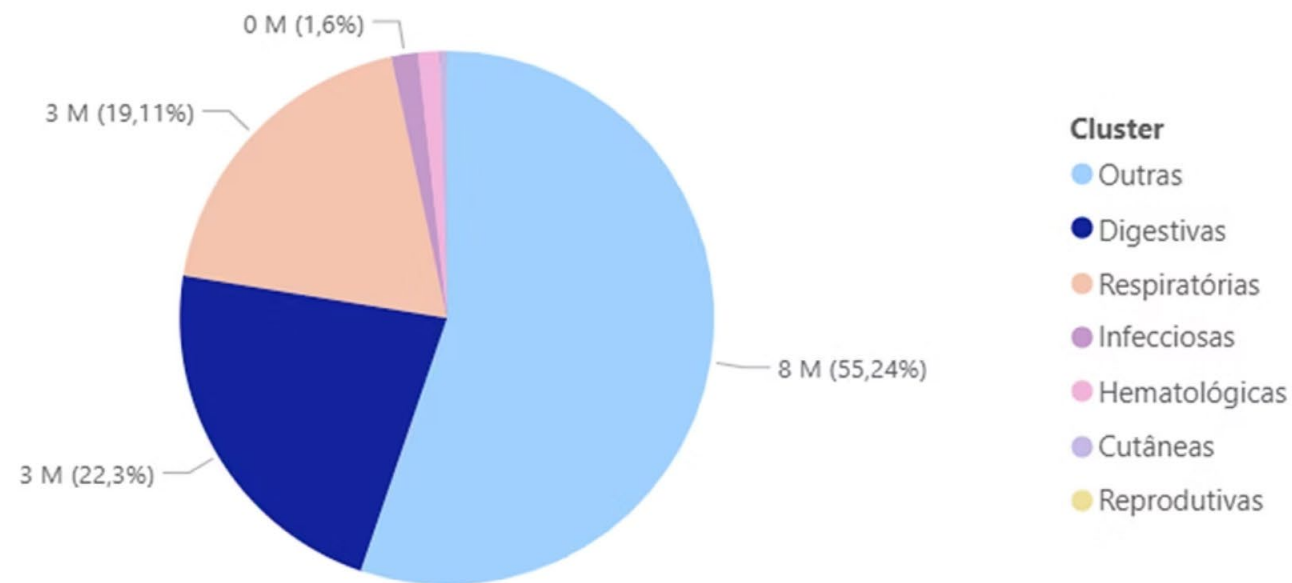
AMEG Categorization



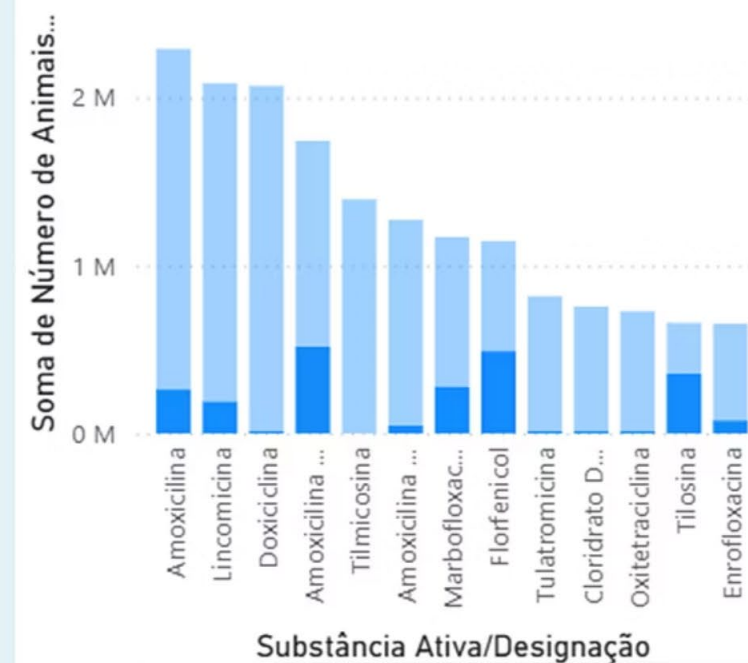
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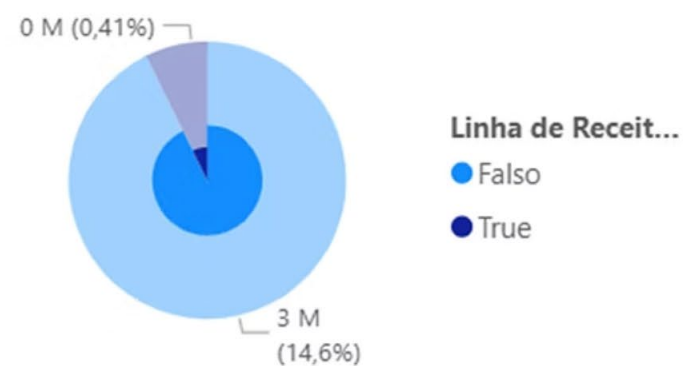
Disease Clusters



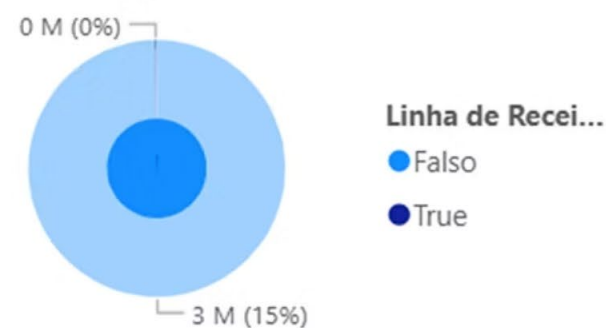
No. of treated animals/ Active Substance



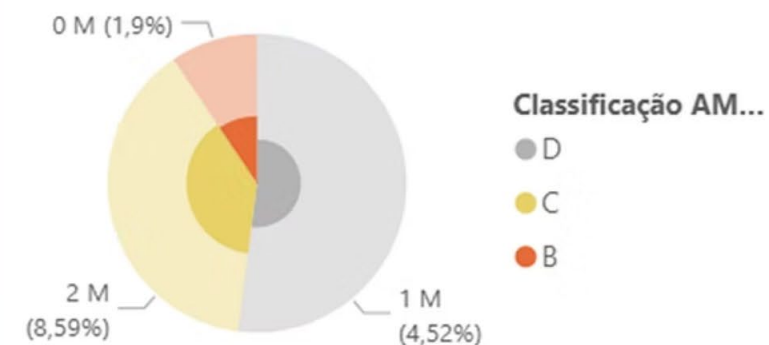
Metaphylatic Use



Prophylatic Use



AMEG Categorization



Region

Açores

Alentejo

Algarve

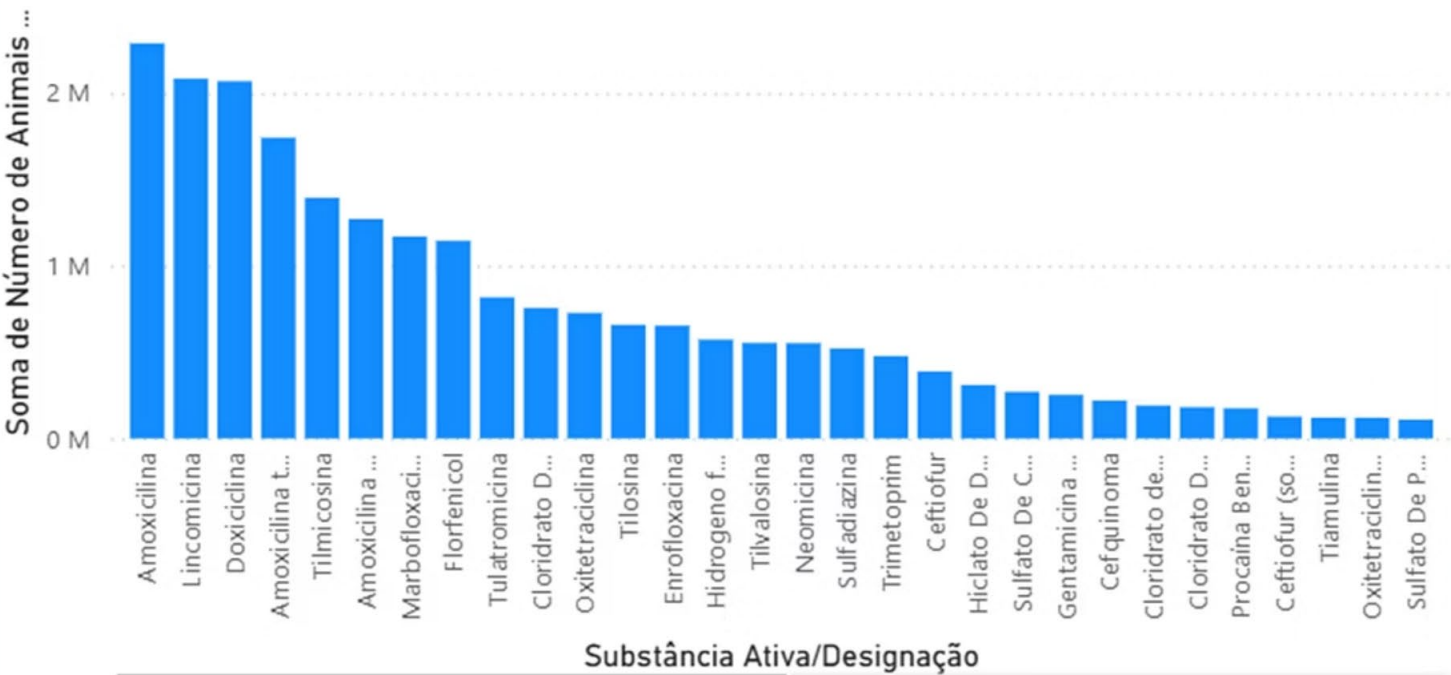
Centro

LVT

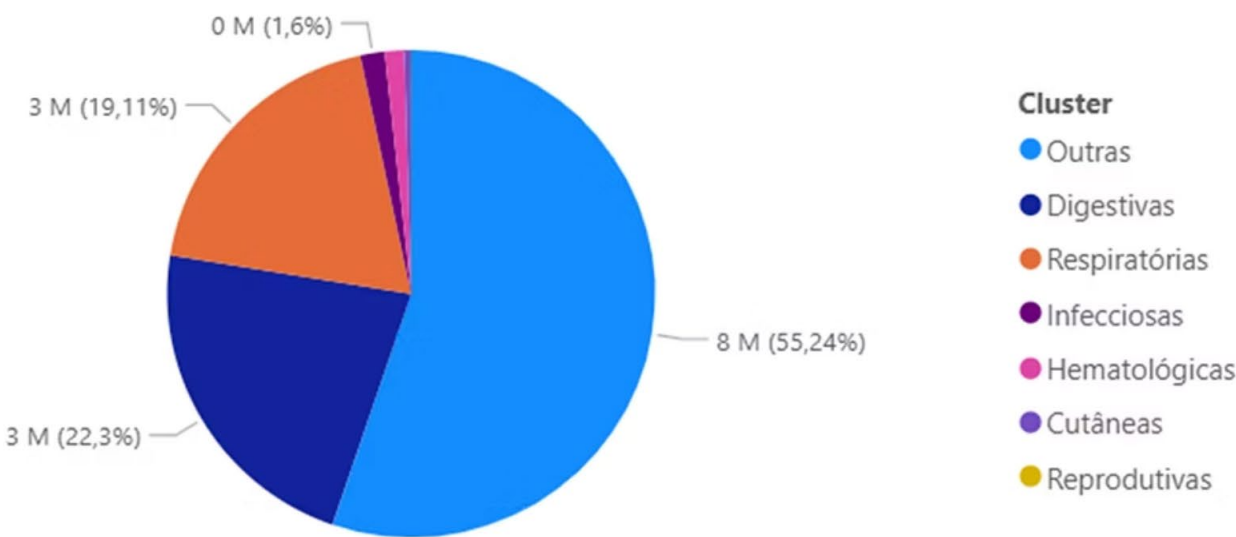
Madeira

Norte

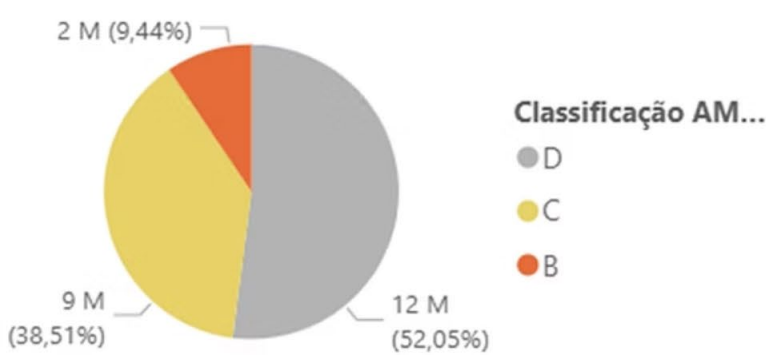
No. of treated animals/ Active Substance



Disease Clusters



AMEG Categorization



Region

Açores

Alentejo

Algarve

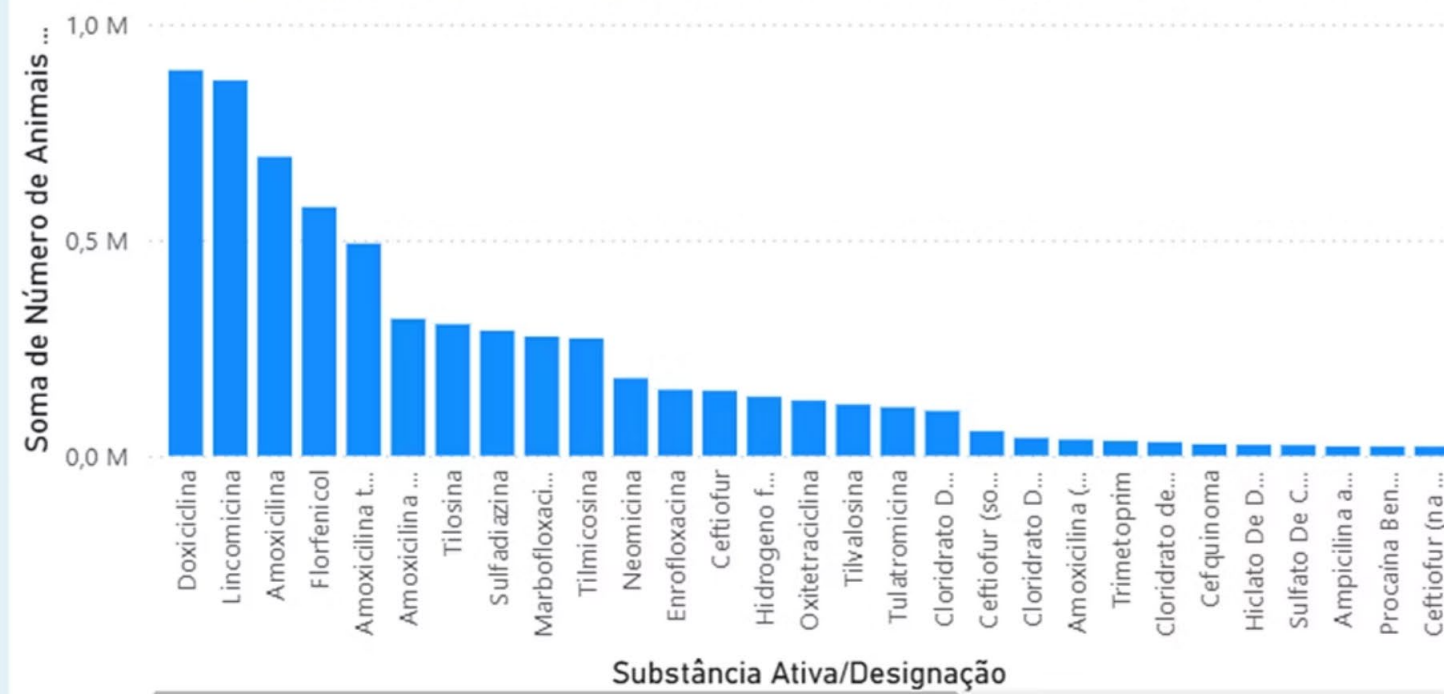
Centro

LVT

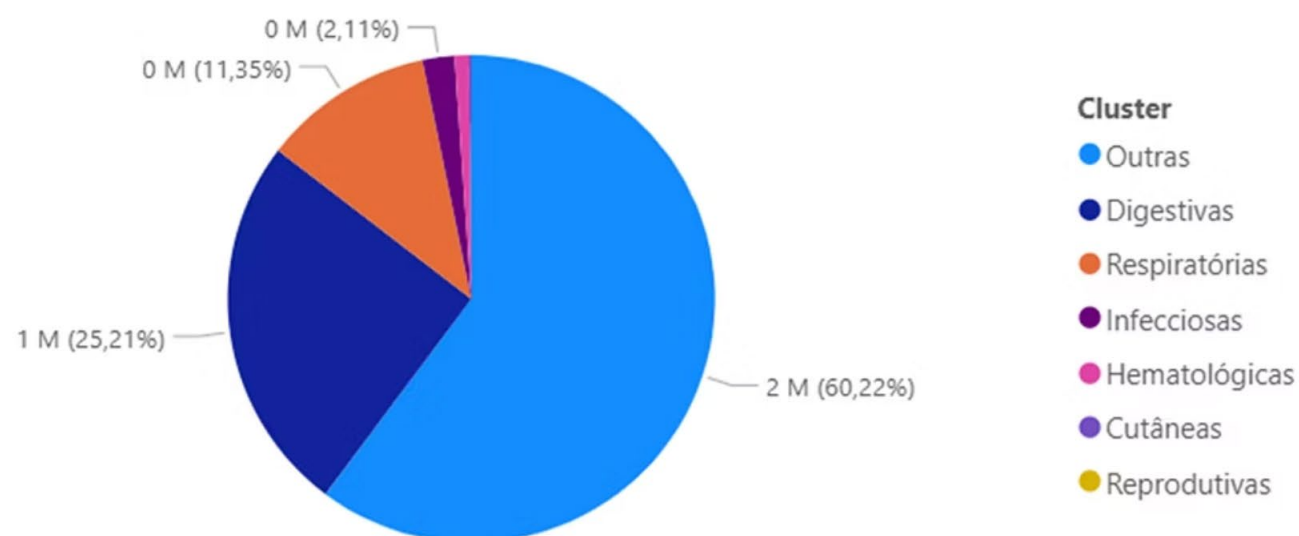
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Norte

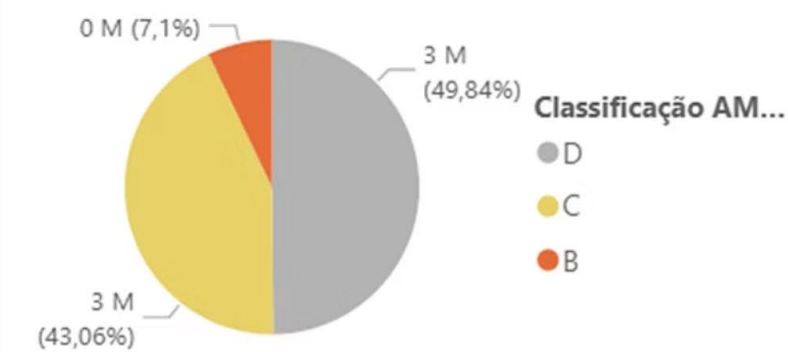
No. of treated animals/ Active Substance



Disease Clusters



AMEG Categorization



Region

Açores

Alentejo

Algarve

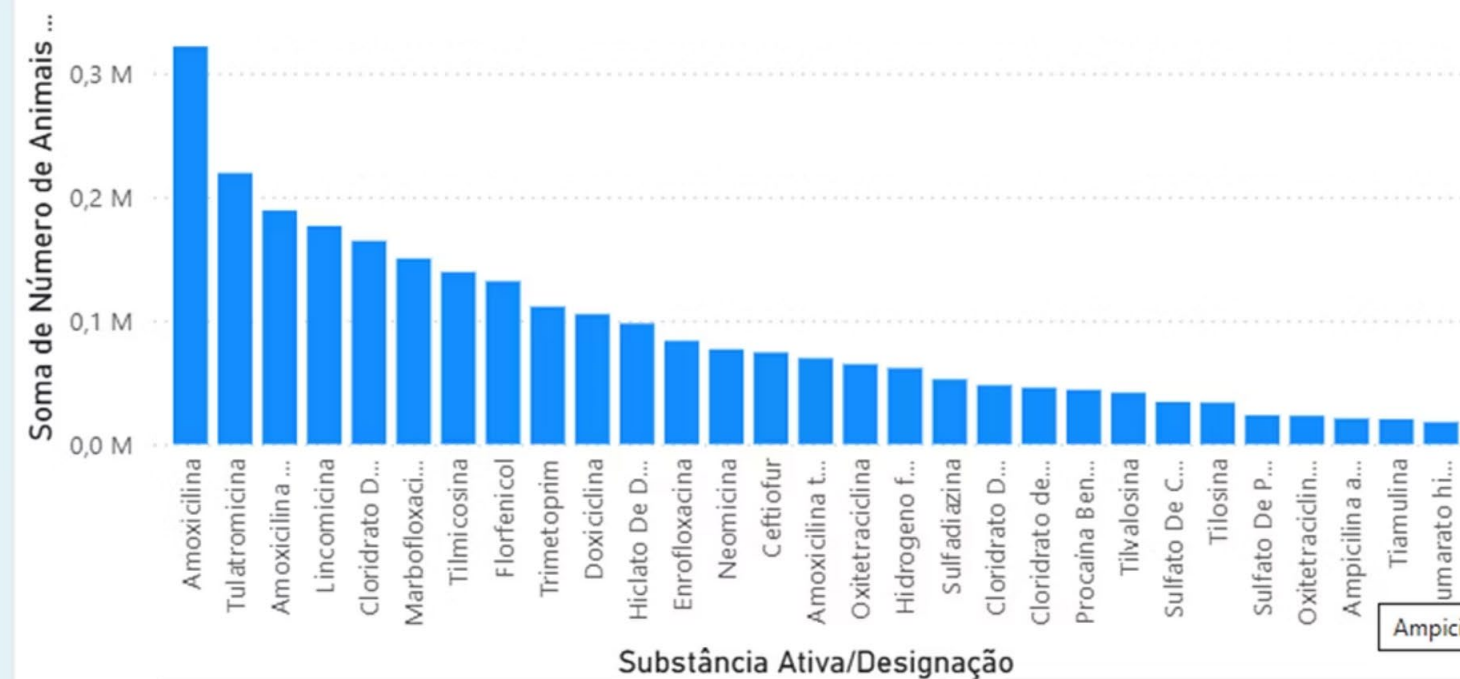
Centro

LVT

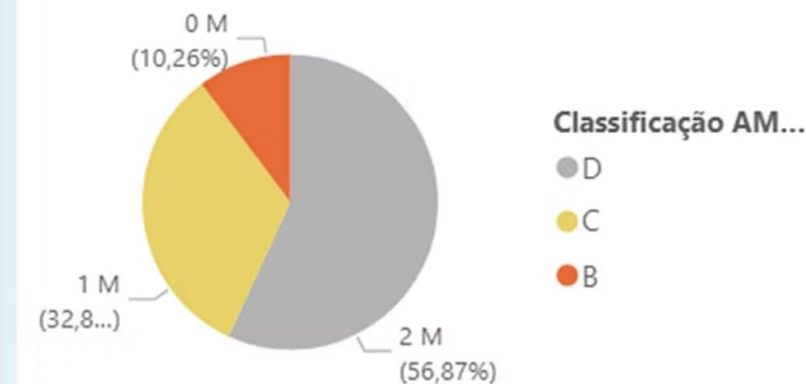
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Norte

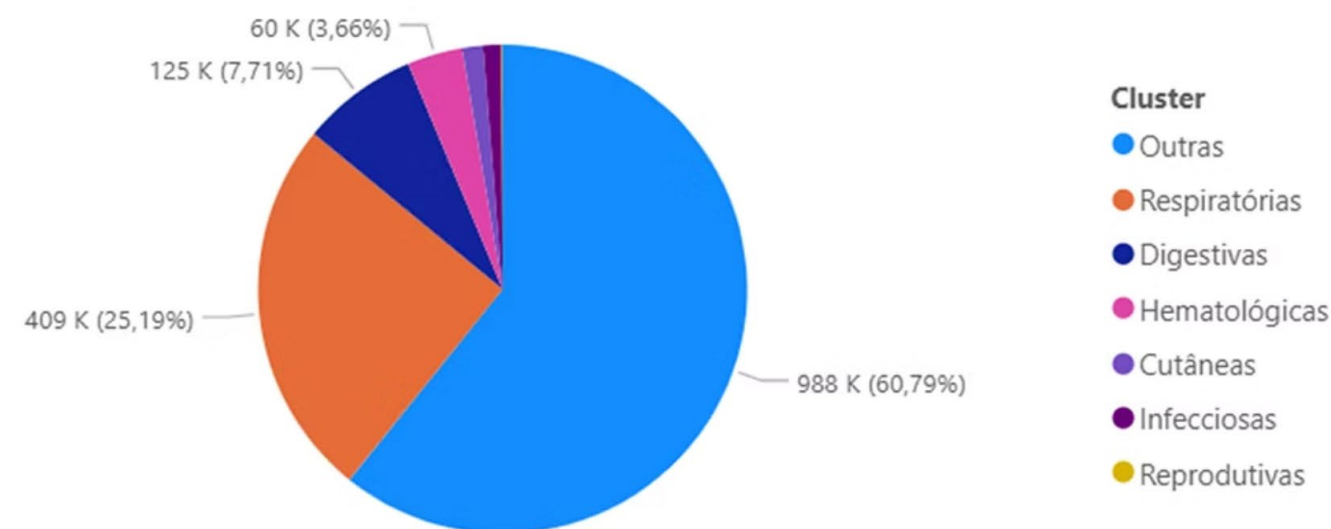
No. of treated animals/ Active Substance



AMEG Categorization



Disease Clusters



What this allows the Regulator to do

Cross-system integration strengthens surveillance, risk assessment and regulatory response across the animal health and public health continuum.

- 

Verification of voluntary vaccination coverage

Enables monitoring of voluntary vaccination programmes (for example, bluetongue), improving disease prevention strategies.
- 

Risk analysis support for the National Residue Control Plan (PNPR)

Provides prescription and usage data to inform and refine risk-based sampling and control measures.
- 

Antimicrobial resistance risk indicators

Generates data to monitor antimicrobial use patterns and identify risk factors contributing to antimicrobial resistance.
- 

Management of veterinary medicine shortages

Facilitates real-time visibility of medicine availability and supports coordinated response mechanisms.
- 

Batch recall traceability

Enhances the management of batch recalls by enabling rapid identification of affected products and ensuring efficient communication and follow-up.



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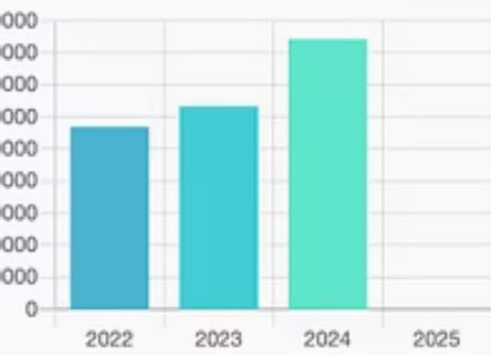
Prescrições Eletrônicas



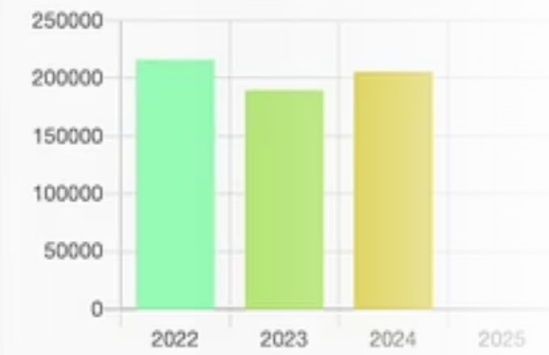
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Receitas Manuais

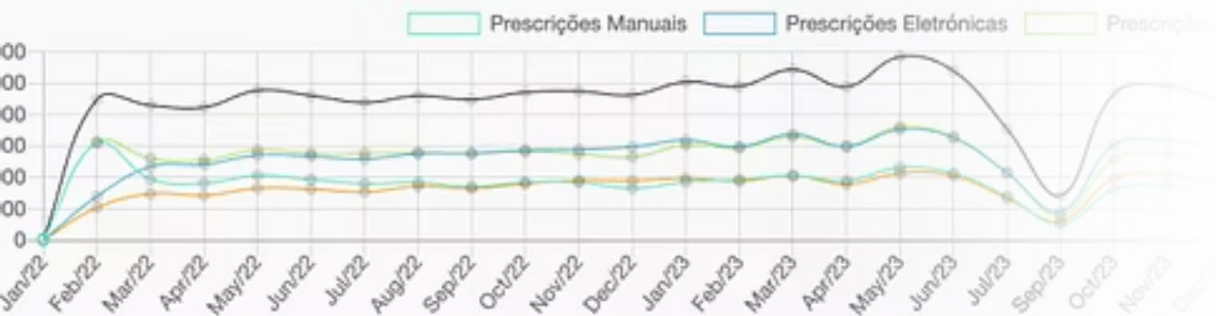
Prescrições Eletrônicas



Receitas Manuais



Prescrições por Mês



Interoperability and Analytics



Real-time data flows



Integration with business intelligence tools



Advanced visualisation, correlation and extraction capabilities



Supports predictive analytics for risk assessment and policy design.

Demonstrating Value in Practice

Data in form clinical protocols, monitor regulatory compliance, guide farm support programmes, monitors use of medicines in a centralised manner and contributes to EU reporting. Also giving Prescribers access granular historical records, enabling more tailored antimicrobial strategies.



Clinical protocols

Evidence-based treatment guidelines



Farm support

Targeted intervention programmes



Regulatory compliance

Continuous monitoring and oversight



EU reporting

Cross-border data integration



In Conclusion

PEMV illustrates how interoperable veterinary data ecosystems foster better clinical decisions, more transparent supply chains and stronger public health outcomes.

This infrastructure transforms prescription records into actionable knowledge at farm, sector and policy level.

Thank you!

Inês Almeida (DGAV)

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dgav
Direção Geral
de Alimentação
e Veterinária