

CHAPTER 8

VETERINARY MEDICINE RESIDUES AND UNAUTHORISED SUBSTANCES

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RESIDUES OF VETERINARY MEDICINES AND UNAUTHORISED SUBSTANCES



Main classes of veterinary medicines

 Antibiotics	 Antiparasitics	 Anti-inflammatory drugs and other medicines
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From administration to control

 Authorised and compliant use	→	 Withdrawal periods	→	 Residues in food	→	 Controls and limits (MRL)
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VETERINARY TREATMENTS AND FOOD SAFETY

Animals reared for food production may receive medicines to prevent or treat illness under the applicable veterinary rules. Active ingredients and their metabolites may leave residues in meat, milk, eggs or other animal products. The mere presence of a residue does not establish that the medicine was used illegally.

To protect consumers, it is necessary to distinguish authorised and compliant use of a medicine, failure to follow prescribed conditions, and use of prohibited or unauthorised substances. These situations have different legal and health implications.

MAXIMUM RESIDUE LIMITS AND WITHDRAWAL PERIODS

For many pharmacologically active substances, a maximum residue limit (MRL) is established for particular foods of animal origin. Assessment takes account of toxicology, the substance's fate and conditions of use. Withdrawal periods between the last administration and food production or slaughter are a management tool for meeting permissible levels.

An MRL is not a concentration below which food necessarily contains no foreign molecules: it is a regulatory requirement based on risk assessments and good practice. Not all substances have an MRL; some are not permitted for food-producing animals.

ANTIBIOTICS, ANTIPARASITICS AND OTHER CLASSES

Antibiotics raise two separate issues: consumers' exposure to any residues and antimicrobial resistance, a complex phenomenon involving the selection and spread of resistant microorganisms. These issues must not be conflated: compliance with residue limits does not, by itself, resolve the management of antimicrobial resistance.

Other medicines include antiparasitics, anti-inflammatory drugs and substances with specific therapeutic indications. When assessing controls, it is important to clarify which active ingredients are included in the analytical panel and which animal species and food matrices are monitored.

PROHIBITED SUBSTANCES AND OFFICIAL CONTROLS

EU legislation distinguishes monitoring programmes for authorised residues from investigations into unlawful use and prohibited substances. Delegated Regulation (EU) 2022/1644 and Implementing Regulation (EU) 2022/1646 govern aspects of control plans, while Implementing Regulation (EU) 2021/808 concerns method-performance criteria and interpretation of results.

Confirming non-compliance requires appropriate analytical procedures and observance of method-performance requirements. A positive screening test is not automatically a definitive conclusion, just as a negative analytical panel does not mean that every possible pharmacological substance is absent.

HOW SHOULD AN ANALYTICAL RESULT BE READ?

LC-MS/MS can detect many substances, but each method has a defined scope, decision limits and performance characteristics. Sampling, preservation, identification and quantification are all aspects of data quality.

Effective control combines proper veterinary prescribing, traceability of treatments, observance of withdrawal periods, food-business operators' own checks and official surveillance. Demonising necessary veterinary treatment would also be counterproductive for animal welfare; the aim is responsible use and documented management of residues.

SCIENTIFIC AND REGULATORY REFERENCES

- European Commission, Residues of veterinary medicinal products [↗ Source](#)
- Regulation (EU) No 37/2010, classification of pharmacologically active substances [↗ Source](#)
- Commission Delegated Regulation (EU) 2022/1644 [↗ Source](#)
- Commission Implementing Regulation (EU) 2021/808 [↗ Source](#)