TECHNICAL REPORT

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Report for 2018 on the results from the monitoring of veterinary medicinal product residues and other substances in live animals and animal products

European Food Safety Authority

Abstract

The report summarises the monitoring data collected in 2018 on the presence of residues of veterinary medicinal products and certain substances in live animals and animal products in the European Union. A total of 657,818 samples were reported to the European Commission by the 28 EU Member States. They consisted of 354,517 targeted samples and 5,095 suspect samples reported under Council Directive 96/23/EC, and of 3,022 samples collected at import and 295,184 samples collected in the framework of programmes developed under the national legislation. The majority of Member States fulfilled the minimum requirements for sampling frequency laid down in Council Directive 96/23/EC and in Commission Decision 97/747/EC. Overall, the percentage of non-compliant samples in 2018 (0.30%) was comparable to the previous 10 years (0.25%-0.37%), although slightly lower compared to 2017 (0.35%). Compared to the results from 2017, in 2018 the frequency of non-compliant results was slightly increased for antithyroid agents, steroids, and 'others'. Slight decreases were noted for antibacterials, anthelmintics, non-steroidal anti-inflammatory drugs, 'other pharmacologically active substances', organochlorine compounds, chemical elements, mycotoxins and dyes. For the other substance groups, there were no notable variations.

Key words: veterinary medicinal products, residue monitoring, Directive 96/23/EC, food safety

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Correspondence: biocontam@efsa.europa.eu

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Summary

The present report summarises the monitoring data from 2018 on the presence of residues of veterinary medicinal products and certain substances in live animals and animal products in the European Union (EU).

The presence of unauthorised substances, residues of veterinary medicinal products or chemical contaminants in food may pose a risk factor for public health. The EU legislative framework defines maximum limits permitted in food and monitoring programmes for the control of the presence of these substances in the food chain. Regulation (EU) No 37/2010 establishes maximum residue limits for residues of veterinary medicinal products in food-producing animals and animal products. Maximum residue levels for pesticides in or on food and feed of plant and animal origin are laid down in Regulation (EC) No 396/2005. Commission Regulation (EC) 1881/2006 lays down the maximum levels for the presence of certain contaminants in animal products. Council Directive 96/23/EC lays down measures to monitor certain substances and residues thereof, mainly veterinary medicinal products, in live animals and animal products. Additionally, Commission Decision 97/747/EC lays down levels and frequencies of sampling for certain animal products.

In the framework of Article 31 of Regulation EC 178/2002, the European Commission (EC) requested the assistance of the European Food Safety Authority (EFSA) to collect data obtained by the Member States in accordance with Directive 96/23/EC and in the annual preparation by the Commission services of a Communication to the European Parliament and the Council.

In 2018, 28 European Union (EU) Member States reported in the framework of the residue monitoring the results for 657,818 samples. A total of 354,517 targeted samples and 5,095 suspect samples were reported under Council Directive 96/23/EC. Additionally, 295,184 samples collected in the framework of other programmes developed under the national legislation and 3,022 samples checked at import, were reported. The data analysis presented in this report was focused on the targeted samples reported under Council Directive 96/23/EC. Samples collected through other sampling strategies (suspect, import or 'other') do not follow a designed monitoring plan; therefore, results on those samples were reported separately from the results on targeted samples.

The majority of Member States fulfilled the requirements for sampling frequency laid down in Council Directive 96/23/EC and in Commission Decision 97/747/EC.

Overall, there were 1,059 or 0.30% of non-compliant samples out of the 354,517 targeted samples in 2018.

For Group A, no non-compliant samples were reported for stilbenes and derivatives (A1). For antithyroid agents (A2), there were 0.51% non-compliant samples, all for thiouracil and 6-methyl-2-thiouracil, and possibly due to feeding diets rich in cruciferous plants. In the group of steroids (A3), non-compliant samples (all for anabolic steroids) were found in bovines (0.16%), horses (0.45%), pigs (0.73%), poultry (0.07%) and sheep and goats (3.03%). For corticosteroids, non-compliant results for authorised substances were reported under 'other pharmacologically active substances' (B2f). In the group of resorcylic acid lactones (A4), 0.15% of the samples were non-compliant for zearalanone and derivatives; the non-compliant samples were found in bovines (0.21%), pigs (0.02%), sheep and goats (1.29%), rabbits (2.63%) and horses (1.09%). For beta-agonists (A5), there were 0.01% non-compliant samples in total, reported for bovines (0.02%) and poultry (0.02%).

Prohibited substances (A6) were found in 0.03% of samples. Substances identified were chloramphenicol (n = 19), nitrofurans (n = 3) and nitroimidazoles (n = 6).

For Group B1 (antibacterials), 0.17% of the samples analysed under the Directive 96/23/EC monitoring were non-compliant. The highest frequency of non-compliant samples for antibacterials was found in honey (0.82%).

In Group B2 (other veterinary drugs), the highest proportion of non-compliant samples was found for non-steroidal anti-inflammatory drugs (NSAIDs) (B2e) (0.19%). For NSAIDs, the non-compliant samples were reported across the different species as follows; bovines (0.25%), poultry (0.11%), horses (1.03%), pigs (0.08%) and milk (0.25%).

Instances of non-compliance for anthelmintics (B2a) were reported in bovines (0.13%), sheep and goats (0.67%), pigs (0.08%) and milk (0.09%).

For anticoccidials (B2b), 0.16% of the samples analysed were non-compliant and were reported across the different species as follows; bovines (0.03%), pigs (0.01%), poultry (0.17%) and eggs (0.65%). Since 2009, an important decrease has been observed in the frequency of non-compliant samples for anticoccidials (B2b) in poultry. This decrease is most likely the result of the awareness and the measures that followed the implementation of the Commission Directive 2009/8/EC setting up maximum levels of unavoidable carry-over of coccidiostats in non-target feed.

For pyrethroids (B2c) overall, 0.02% of the samples analysed were non-compliant and reported for honey only. No non-compliant samples were reported for sedatives (B2d). Non-compliant samples were reported for 'other pharmacologically active substances' (B2f), in bovines (0.15%).

In the Group B3 (other substances and environmental contaminants), the 'chemical elements' (B3c) had the highest overall percentage of non-compliant samples (3.24%), with cadmium, lead, mercury and copper being most frequently identified. Non-compliant samples were reported for organochlorine compounds (B3a) and organophosphorus compounds (B3b); 0.16% and 0.03%, respectively. For mycotoxins (B3d), non-compliant samples were reported for bovines (0.11%), pigs (0.27%), horses (1.19%), rabbits (4.76%) and poultry (0.07%); with those identified being zearalenone and aflatoxin B_1. For dyes (B3e), non-compliant samples were reported for aquaculture (1.24%). The substances found were leuco-malachite green, crystal violet, sum of brilliant green and brilliant green-leuco and sum of malachite green and leuco-malachite green. For 'other substances' (B3f), non-compliant samples were reported for honey (0.38%), pigs (0.13%) and eggs (0.33%). The substances identified were fipronil, difenoconazole, flonicamid.

Overall, the percentage of non-compliant samples in 2018 (0.30%) was comparable to the previous 10 years (0.25%-0.37%), although slightly lower compared to 2017 (0.35%).

Compared to the results from 2017, in 2018 the frequency of non-compliant results was slightly increased for antithyroid agents (A2), steroids (A3), and 'others' (B3f). Slight decreases were noted for antibacterials (B1), anthelmintics (B2a), non-steroidal anti-inflammatory drugs (NSAIDs) (B2e), 'other pharmacologically active substances' (B2f), organochlorine compounds (B3a), chemical elements (B3c), mycotoxins (B3d) and dyes (B3e). For the other substance groups, there were no notable variations.

Table of contents

1. Introduction

1.1. Background and Terms of Reference as provided by the European Commission

1.1.1. Background

Council Directive 96/23/EC[1] requires the Member States to implement a national residue monitoring plan for specific groups of residues specified in its Annexes I and II. Member States must submit their monitoring data and resulting control measures no later than 31 March of the following year. So far, this data has been collected in a Commission database. Member States must also publish the outcome of the implementation of their plans.

The Commission has the obligation to inform the Member States of developments in the situation within the Standing Committee on the Food Chain and Animal Health. Each year, the Commission shall send a Communication on the results of the action taken to the European Parliament and the Council, bearing in mind the comments of the Member States. This yearly communication includes an annual compilation of the results of residue monitoring in the Member States as well as information on actions taken at Member State level as follow-up to non-compliant results.

The Commission has published the annual Communications to the Parliament and the Council since 2001. The latest versions are available online[2]. In view of a further harmonisation of data collection on chemicals in food, the Commission Services consider it useful to address a request for technical assistance to EFSA.

1.1.2. Terms of reference as provided by the European Commission

In the framework of Article 31 of Regulation (EC) No 178/2002, the Commission requests EFSA's assistance in the collection of the data obtained by the Member States in accordance with Directive 96/23/EC and in the annual preparation by the Commission services of a Communication to the European Parliament and the Council.

EFSA shall develop a data collection system allowing direct data submission by the Member States.

This data collection system shall:

- collect information on all samples analysed in the framework of residue monitoring, and explore the possibility of its extension to all analyses concerning residues of veterinary medicinal products;
- allow the Member States to provide information on follow-up actions directly linked to the respective non-compliant results;
- allow differentiated access to the data for Commission services and Member States.

The data collection system should at least allow the extraction of:

- reports on the implementation of the residue monitoring plan. Each Member State shall be able to extract a report containing only their respective national data. The structure of the report shall be agreed with the Member States and Commission services;
- an annual compilation of the monitoring data of all Member States. EFSA shall annually extract such a compilation containing data submitted by the Member States for the past year. EFSA shall use the current format and level of detail as a basis for future compilations;
- a summary overview of the actions taken by the Member States as follow-up to non-compliant results. The Commission services shall be the only party that can extract such data for all Member States. The Member States shall be able to extract their own respective data. The structure of this overview shall be agreed with the Commission services.

EFSA shall present each annual compilation in the Standing Committee of the Food Chain and Animal Health two months after the last data submission by the Member States and collect comments from

[1] Council Directive 96/23/EC on measures to monitor certain substances and residues thereof in live animals and animal products and repealing Directives 85/358/EEC and 86/469/EEC and Decisions 89/187/EEC and 91/664/EEC (OJ L 125, 23.5.1996, p. 10).

[2] http://ec.europa.eu/food/food/chemicalsafety/residues/control_en.htm

the Commission and the Member States. EFSA shall send the final annual compilation taking into account the comments received to the Commission services.

1.2. Additional information

The presence of unauthorised substances, residues of veterinary medicinal products or chemical contaminants in food may pose a risk factor for public health. The EU legislative framework defines maximum limits permitted in food and monitoring programmes for the control of the presence of these substances in the food chain.

Council Directive 96/23/EC on measures to monitor certain substances and residues thereof in live animals and animal products requires Member States to adopt and implement a national residue monitoring plan for the groups of residues detailed in its Annex I in accordance with the sampling rules referred to in Annex IV. The Directive lays down sampling levels and frequency for bovines, pigs, sheep and goats, equine animals, poultry and aquaculture, as well as the groups of substances to be monitored for each food commodity. Commission Decision 97/747/EC[3] lays down rules for levels and frequencies of sampling for milk, eggs, honey, rabbit meat and game.

National residue control plans should be targeted to take the following minimum criteria into account: species, gender, age, fattening system, all available background information and all evidence of misuse or abuse of substances. Additionally, suspect samples may also be taken as part of the residue control.

The requirements for the analytical methods to be applied in the testing of official samples and the common criteria for the interpretation of analytical results are laid down in Commission Decision 2002/657/EC[4] of 12 August 2002 implementing Council Directive 96/23/EC.

Targeted samples are taken with the aim of detecting illegal treatment or controlling compliance with the maximum levels laid down in the relevant legislation. This means that, in their national plans Member States target the groups of animals (species, gender, age) where the probability of finding residues is the highest. Conversely, the objective of random sampling is to collect significant data to evaluate, for example, consumer exposure to a specific substance.

Suspect samples are taken as a consequence of i) non-compliant results on samples taken in accordance with the monitoring plan, ii) possession or presence of prohibited substances at any point during manufacture, storage, distribution or sale through the food and feed production chain, or iii) suspicion or evidence of illegal treatment or non-compliance with the withdrawal period for an authorised medicinal veterinary product.

Residues of pharmacologically active substances mean active substances, excipients or degradation products and their metabolites, which remain in food.

Unauthorised substances or products mean substances or products prohibited under European Union legislation.

Illegal treatment refers to the use of unauthorised substances or products or the use of substances or products authorised under EU legislation for purposes or under conditions other than those laid down in EU legislation or, where appropriate, in the various national legislation.

Withdrawal period represents the period necessary between the last administration of the veterinary medicinal product to animals under normal conditions of use and the production of foodstuffs from such animals, in order to ensure that such foodstuffs do not contain residues in quantities in excess of the maximum limits laid down in EU legislation.

Non-compliant result since the entry into force of Decision 2002/657/EC, the term for analytical results exceeding the permitted limits (in previous reports termed 'positives') is 'non-compliant'. The

[3] Commission Decision 97/747/EC fixing the levels and frequencies of sampling provided for by Council Directive 96/23/EC for the monitoring of certain substances and residues thereof in certain animal products. OJ L 303, 6.11.1997, p. 12–15.
[4] Commission Decision 2002/657/EC of 12 August 2002 implementing Council Directive 96/23/EC concerning the performance of analytical methods and the interpretation of results. OJ L 221, 17.8.2002, p. 1-29.

result of an analysis shall be considered non-compliant if the decision limit of the confirmatory method for the analyte is exceeded.

Non-compliant sample is a sample that has been analysed for the presence of one or more substances and failed to comply with the legal provisions for at least one substance. Thus, a sample can be non-compliant for one or more substances.

Maximum residue limit (MRL) is the maximum concentration of residue resulting from the use of a veterinary medicinal product which may be accepted by the Community to be legally permitted or recognised as acceptable in or on a food. For veterinary medicinal products, MRLs are established according to the procedures laid down in Regulation (EC) No 470/2009[5] of the European Parliament and of the Council of 6 May 2009. Pharmacologically active substances and their classification regarding maximum residue limits are set out in Commission Regulation (EU) No 37/2010[6] of 22 December 2009. In addition, Commission Directive No 2009/8/EC[7] lays down maximum levels of unavoidable carry-over of coccidiostats or histomonostats in non-target feed and Commission Regulation (EC) No 124/2009[8] lays down maximum levels for the presence of coccidiostats or histomonostats in food resulting from the unavoidable carry-over of these substances in non-target feed.

For pesticides, MRLs are laid down in Regulation (EC) No 396/2005.[9] Some substances (e.g. carbamates, pyrethroids, organophosphorus compounds) are recognised both as veterinary medicinal products and pesticides and therefore they might have different MRLs in the corresponding legislation.

Maximum levels for contaminants are laid down in Commission Regulation (EC) No 1881/2006.[10] For contaminants where no EU maximum levels had been fixed at the time when data included in this report were collected, national tolerance levels were applied.

Minimum Required Performance Limits (MRPLs) - according to the Annex to Commission Decision 2002/657/EC, MRPL is the minimum content of an analyte in a sample which has to be detected and confirmed. It is intended to harmonise the analytical performance of methods for substances for which no permitted limit has been established. MRPLs for chloramphenicol, nitrofurans metabolites and medroxyprogesterone acetate were established by Commission Decision 2003/181/EC[11] and for malachite and leuco-malachite green were established by Commission Decision 2004/25/EC.[12]

1.3. Objectives

The present report summarises the monitoring data from 2018 submitted by the Member States to the EFSA. Data analysis was mainly focused on data submitted under Directive 96/23/EC and aimed to provide an overview on:

[5] Regulation (EC) No 470/2009 of the European Parliament and of the Council of 6 May 2009 laying down Community procedures for the establishment of residue limits of pharmacologically active substances in foodstuffs of animal origin, repealing Council Regulation (EEC) No 2377/90 and amending Directive 2001/82/EC of the European Parliament and of the Council and Regulation (EC) No 726/2004 of the European Parliament and of the Council. OJ L 152, 16.6.2009, p. 11–22.

[6] Commission Regulation (EC) No 37/2010 of 22 December 2009 on pharmacologically active substances and their classification regarding maximum residue limits in foodstuffs of animal origin. OJ L 15, 20.1.2010, p. 1–72.

[7] Commission Directive 2009/8/EC of 10 February 2009 amending Annex I to Directive 202/32/EC of the European Parliament and of the Council as regards maximum levels of unavoidable carry-over of coccodiostats or histomonostats in non-target feed. OJ L 40, 11.2.2009, p. 19–25.

[8] Commission Regulation (EC) No 124/2009 of 10 February 2009 setting maximum levels for the presence of coccidiostats or histomonostats in food resulting from the unavoidable carry-over of these substances in non-target feed. OJ L 40, 11.2.2009, p. 7–11.

[9] Regulation (EC) 396/2005 of the European Parliament and of the Council of 23 February 20005 on maximum residue levels of pesticides in or on food and feed of plant and animal origin and amending Council Directive 91/414/EEC. OJ L 70, 16.3.2005, p. 1–16.

[10] Commission Regulation (EC) 1881/2006 setting maximum levels for certain contaminants in foodstuffs. OJ L 364, 20.12.2006, p. 5–24.

[11] Commission Decision 2003/181/EC of 13 March 2003 amending Decision 2002/657/EC as regards the setting of minimum required performance limits (MRPLs) for certain residues in food of animal origin. OJ L 71, 15.3.2003, p. 17–18.

[12] Commission Decision 2004/25/EC of 22 December 2003 amending Decision 2002/657/EC as regards the setting of minimum required performance limits (MRPLs) for certain residues in food of animal origin. OJ L 6, 10.1.2004, p. 38—39.

- production volume and number of samples collected in each Member State. These data were used to check whether the Member States had fulfilled the minimum requirements on sampling frequency as stated in Directive 96/23/EC and Commission Decision 97/747/EC.
- number of samples analysed in each animal species or food commodity for substance groups and subgroups as defined in Annex I to Directive 96/23/EC (see Appendix E);
- summary of non-compliant results per animal species or food commodity and substance group;
- identification of main substances contributing to non-compliant results within a group;
- EU overall distribution of non-compliant samples in the substance groups.

2. Data and Methodologies

Data used in this report have been collected from Member States under Directive 96/23/EC. The samples included in the monitoring were taken from the production process of animals and primary products of animal origin (live animals, their excrements, body fluids and tissues, animal products, animal feed and drinking water). Each Member State assigns the coordination of the national monitoring plan to a central public department or body which is also in charge of the data collection at national level (Directive 96/23/EC Art. 4) and reporting the results to EFSA.

The samples taken in 2018 were reported using Standard Sample Description Version 2.0 format (EFSA, 2013). This standard can be used to report the results of laboratory tests performed on samples of food, feed, animals and plants. Specific requirements for reporting the results of laboratory tests for veterinary medicinal products are described in EFSA, 2015a and EFSA, 2019. The standard allows results for all marker residues analysed for in a sample of animals or animal products to be reported. The following information is recorded:

Sampling event: one or more tissues taken from an animal at a specific location and at a specific point in time (e.g. kidney and muscle samples taken from a single pig carcass at slaughter). The sampling event requires the sampling point and sampling strategy to be recorded. The sampling strategy can be targeted, suspect, import or other.

Sample taken: The sample taken is described using EFSA FoodEx2 classification (e.g. beef liver or chicken eggs) (EFSA, 2015b). These samples are then categorised as bovines, pigs, sheep & goats, horses, poultry, rabbit, farmed game, wild game, aquaculture, milk, eggs and honey. Samples of game birds such as quail, partridge and pheasant are classified in the poultry category, unless they are reported as 'wild or gathered or hunted'; in the latter case, the samples have been classified in the wild game category. Due to this approach, which differ from the classification methodology followed by the Member States, discrepancies might be noted between the National Plans submitted to the EC and the results included in this report.

The country where the sample was taken, the date of sampling and the country of origin are also recorded.

Analytical method: Both screening and confirmatory tests can be reported. CCbeta – i.e. the detection capability - is reported for screening tests and CCalpha the decision limit is reported for confirmatory tests.

Marker residue: The results for all residues, both above and below the limits of detection and covered by the scope of a laboratory method, are reported. An analysis hierarchy groups the residues according to the substance groups described in Annex I of Directive 96/23/EC.

Non-compliant results: Each result is classified as compliant or non-compliant by the reporting country. Additional information on investigation outcomes in the case of non-compliant results is also recorded, where available. In cases where the control results have been reported for the single component(s) of a 'Multicomponent/Sum' residue definition (e.g. for the marker residue 'Sum of enrofloxacin and ciprofloxacin') in addition to the single components' results (e.g. in cases where the results were also reported for enrofloxacin and/or for ciprofloxacin), the non-compliant results at sample event level have been totalled considering only the sum-results to avoid double-counting.

The data was submitted in XML format to the EFSA data collection framework. Automatic data quality checks were performed as described in EFSA, 2018. Reporting countries were provided with the opportunity to validate their data submission by examining and confirming the content of a national report which summarises the data that had been submitted.

Production volumes: The number of animals for bovines, pigs, sheep and goats, and horses, and in tonnes for poultry, rabbit, farmed game, wild game, aquaculture, milk, eggs and honey were downloaded from the residues database of the Directorate General for Health and Food Safety (DG SANTE). This information was used to verify whether the minimum sampling frequencies had been fulfilled.

The reported data is aggregated counting the number of distinct sampling events (**samples analysed**), the number of sampling events where one or more results are non-compliant (**non-compliant samples**) and the number of non-compliant results (**non-compliant results**) by reporting country, animal category/product, marker residue and substance group. Since more than one result can be non-compliant in a sample the sum of non-compliant results might be higher than the sum of non-compliant samples. The percent non-compliant samples were calculated with non-compliant samples as the nominator and samples analysed as the denominator. Previously, in the data analysis performed up to the control activities carried out in 2016, the number of samples analysed for a specific residue was not always available from countries where there were no non-compliant results. Using the current approach, the percent non-compliant samples may in some cases be higher, as in the previous approach samples which had not been tested for a specific residue may have been included in the denominator.

The data used in the preparation of this report were extracted from the EFSA database in November 2019 and are reflective of the database during this time period.

The data analysis was performed using Microstrategy and SAS Enterprise Guide 7.1.

3. Results

The structure and data analysis performed in the present report follows that of previous reports:

- the EU overall assessment includes all animal/animal product categories and is presented for each main substance group;
- assessment of samples analysed, non-compliant samples and non-compliant results are presented for each animal/animal product category separately;
- suspect samples are evaluated separately from the targeted samples;
- results which were not reported under the Council Directive 96/23/EC (import and 'others') are not included in the overall assessment but treated separately;
- non-compliant results for the individual substances in each animal/animal product category are listed in Appendix A (targeted samples), Appendix B (suspect samples), Appendix C (import samples) and Appendix D ('other' samples).

3.1. EU overall assessment

The aim of this assessment is to give an overview of the total number of samples analysed for the individual substance groups and to summarise the non-compliant samples for the major substance groups at EU level. Further details on the non-compliant samples found in each animal/product category are presented in Sections 3.2 to 3.13.

In 2018, 657,818 samples were reported by the 28 Member States for analysis of substances and residues covered by Directive 96/23/EC. Out of this, 354,517 were targeted samples collected in conformity with the specifications of the National Residue Control Plans (NRCPs) for 2018. Additionally, 5,095 suspect samples were reported as follow-up of non-compliant targeted samples or suspicion of illegal treatment or non-compliance with the withdrawal period. Apart from the data submitted in accordance to NRCPs, Member States reported in total 295,184 samples collected in the framework of other programmes developed under the national legislation. A relatively limited number of data were reported for samples checked at import (n = 3,022). This is because the control of

samples at import is more linked to the third country monitoring than to the residue monitoring in EU; thus Member States report those results to the EC (using other tools e.g. the Trade Control and Expert System (TRACES) and the Rapid Alert System for Food and Feed (RASFF)).

Of the total targeted samples, 54% were analysed for substances having an anabolic effect and unauthorised substances (group A) and 67% for veterinary drugs and contaminants (group B)[13]. Of the 354,517 targeted samples, 1,059 were non-compliant (0.30%) (1,226 non-compliant results). The percentage of non-compliant samples calculated from the total number of samples analysed for substances in that category was: 0.13% for substances having an anabolic effect and unauthorised substances (A), 0.17% for antibacterials (B1), 0.14% for the 'other veterinary drugs' (B2) and 1.06% for 'other substances and environmental contaminants' (B3) (Table 1, Figure 1).

Table 1: Number of targeted samples analysed, non-compliant samples and non-compliant results in all species and product categories

Substance group[(a)]	Samples analysed[(b)]	% samples analysed	Non-compliant samples[(c)]	% Non-compliant samples	Non-compliant results[(d)]
A	193,167	54.5	257	0.13	350
A1	23,964	6.8	0	0	0
A2	8,558	2.4	44	0.51	46
A3	42,494	12	152	0.36	219
A4	19,685	5.6	29	0.15	52
A5	33,165	9.4	4	0.01	5
A6	99,936	28.2	28	0.03	28
B	237,812	67.1	806	0.34	876
B1	105,389	29.7	179	0.17	218
B2	114,624	32.3	160	0.14	170
B2a	31,163	8.8	42	0.13	49
B2b	36,785	10.4	59	0.16	61
B2c	12,619	3.6	2	0.02	2
B2d	10,016	2.8	0	0	0
B2e	20,747	5.9	40	0.19	41
B2f	30,328	8.6	19	0.06	19
B3	43,891	12.4	466	1.06	486
B3a	14,113	4	23	0.16	23
B3b	10,621	3	3	0.03	3
B3c	12,193	3.4	395	3.24	414
B3d	9,449	2.7	14	0.15	14
B3e	1,713	0.5	21	1.23	21
B3f	6,488	1.8	11	0.17	11
Total	**354,517**	**100**	**1,059**	**0.30**	**1,226**

(a): as detailed in Appendix E;
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

[13] Some samples were analysed for substances in both groups therefore the sum of percentages is higher than 100.

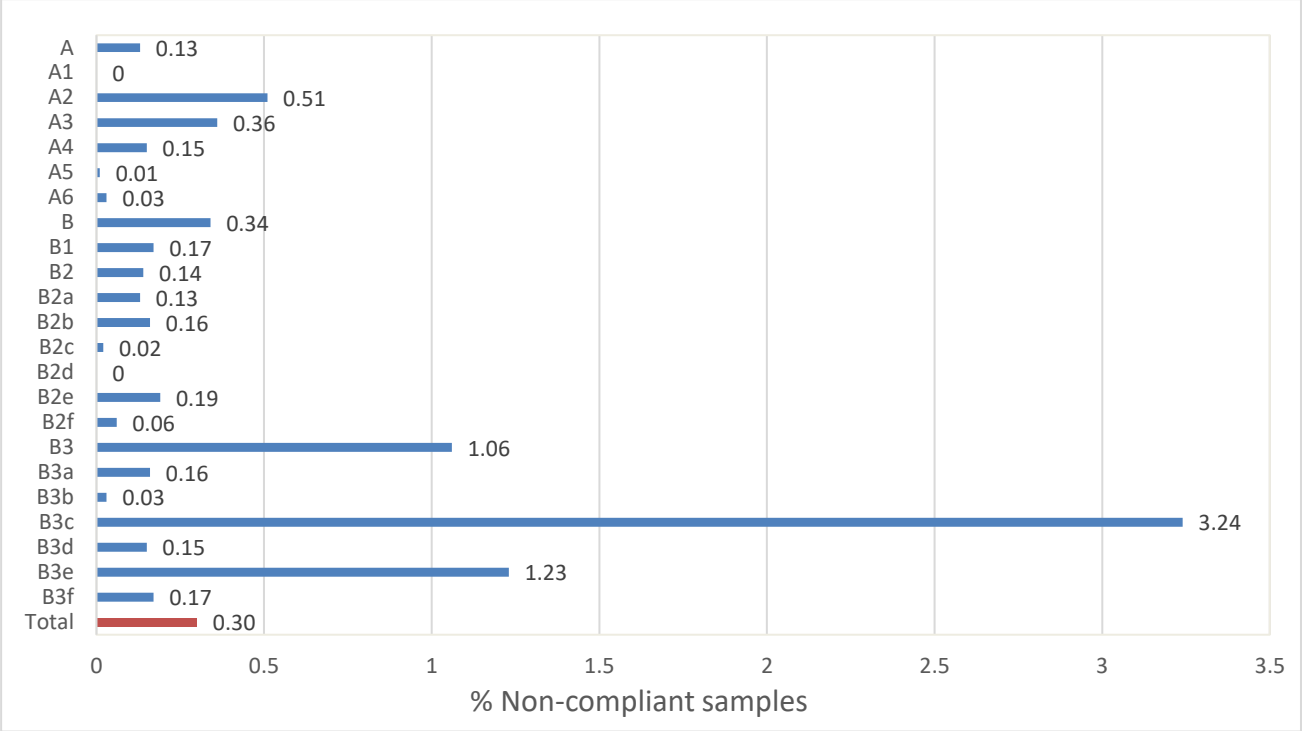


Figure 1: Percentage of non-compliant samples in each substance group

3.1.1. Hormones

Directive 96/22/EC[14] prohibits the use of hormones in food producing animals except for well-defined therapeutic and zootechnical purposes and under strict veterinary control.

This group includes also synthetic, hormonally active substances such as stilbenes and their derivatives (A1), antithyroid agents (A2) and steroids (A3). Resorcylic acid lactones (A4) are hormonally active as well and potentially used for growth promoting purposes, but their presence in animals and products of animal origin could also be linked to the ingestion of feed contaminated with fungi belonging to the genus *Fusarium*.

Of all the targeted samples analysed for the category 'hormones' in all animal/product categories (94,701 samples) there were 225 non-compliant samples (0.24%) (317 non-compliant results).

The number of targeted samples analysed for stilbenes and derivatives (A1) in all animal/product categories together, was 23,964 and no non-compliant samples were reported for this group.

Antithyroid agents (A2) were analysed in 8,558 targeted samples of which 44 samples were non-compliant (0.51%) (46 non-compliant results). All non-compliant samples in the group A2 were for thiouracil, or 6-methyl-2-thiouracil, and were found in bovines (n = 35; 0.85%), pigs (n = 2; 0.06%), rabbits (n = 1; 4.76%) and sheep/goats (n = 6; 2.91%). Residues of thiouracil resulted most probably from feeding diets rich in cruciferous plants. Pinel et al. (2006) demonstrated that urinary excretion of thiouracil in adult bovines fed with cruciferous plants can give erroneous indications of the possible illegal use of thyrostats in meat production animals.

For steroids (A3), of the 42,494 samples analysed in all animal species and product categories, 152 samples were non-compliant (0.36%) (219 non-compliant results). The non-compliant samples were found in bovines (n = 40; 0.16%), horses (n = 1; 0.45%), pigs (n = 77; 0.73%), poultry (n = 4, 0.07%) and sheep and goats (n = 30; 3.03%). Some Member States have indicated that residue findings on steroid hormones may not be attributable to illegal treatment, as the source was most

[14] Council Directive 96/22/EC of 29 April 1996 concerning the prohibition on the use in stockfarming of certain substances having a hormonal or thyrostatic action and of ß-agonists, and repealing Directives 81/602/EEC, 88/146/EEC and 88/299/EEC

likely the endogenous production, as reported in previous studies (Clouet et al., 1997; Samuels et al., 1998).

The legal utilisation of corticosteroids (e.g. dexamethasone, betamethasone and prednisone) in the therapy of food producing animals in the EU, as for any other veterinary medicine, is strictly regulated in the EU, with withdrawal periods given between treatment and slaughtering. In previous years, some Member States included authorised corticosteroids under the group A3, whereas others allocated them to the subgroup B2f (other pharmacologically active substances). The Member States that included all corticosteroids in group A3 claimed that in this way they have more legal action power against illegal use. However, from 2012, following a move towards a common approach in the reporting of corticosteroids, all Member States with non-compliant results have allocated them under subgroup B2f and no longer under A3 (see Section 3.1.5 and Table 4 for details).

For resorcylic acid lactones (A4), of 19,685 samples analysed in all animal species and product categories, 29 were found non-compliant (0.15%) (52 non-compliant results), for zearalanone and derivatives. The non-compliant samples were found for bovines (n = 22; 0.21%), pigs (n = 1; 0.02%), sheep and goats (n = 4; 1.29%), rabbit (n = 1; 2.63%) and horses (n = 1; 1.09%).

3.1.2. Beta-agonists

Beta-agonists (A5) are used therapeutically in human and animal medicine for specific effects on smooth muscle. When misused at higher doses, they can also act as growth promoters by stimulating the increase of the muscular mass and reducing the adipose tissue. Directive 96/22/EC prohibits the use of beta-agonists in food producing animals except for well-defined therapeutic purposes and under strict veterinary control. In 2018, 33,165 targeted samples were analysed for beta-agonists, with 4 non-compliant samples (0.01%) (5 non-compliant results) reported in total. The non-compliant samples were found for bovines (n = 3; 0.02%) and poultry (n = 1; 0.02%).

3.1.3. Prohibited substances

This group (A6) includes substances listed in Commission Regulation (EU) No 37/2010 under prohibited substances for which MRLs cannot be established. These substances are not allowed to be administered to food-producing animals. Examples of substances belonging to this group are chloramphenicol, nitrofurans and nitroimidazoles.

In the framework of the 2018 residue monitoring, 99,936 targeted samples were analysed for prohibited substances and 28 samples (0.03%) were non-compliant (28 non-compliant results). Altogether, there were 19 non-compliant results for chloramphenicol, three for nitrofurans and six for nitroimidazoles (Table 2).

The distribution of the non-compliant results, by individual substance and Member State, are presented in Appendix A.

Table 2: Overview on the non-compliant results for prohibited substances

Substance	Species/Product	Number of non-compliant results	Member States reporting non-compliant results
Chloramphenicol			
Chloramphenicol	Aquaculture	2	Czechia, Spain
	Bovines	7	Poland, Slovakia, Spain
	Eggs	1	Latvia
	Honey	2	Poland
	Milk	2	Poland, Spain
	Pigs	1	Italy
	Poultry	4	France, Germany, United Kingdom
Nitrofurans			
AMOZ (5-methylmorpholino-3-amino-2-oxazolidone)	Poultry	1	Netherlands
AOZ (3-amino-2-oxazolidone)	Honey	1	Poland
SEM (semicarbazide)	Sheep/goats	1	United Kingdom
Nitroimidazoles			
Metronidazole	Honey	5	Poland
	Poultry	1	Germany

3.1.4. Antibacterials

The group of antibacterials (B1) includes antibiotics (e.g. beta-lactams, tetracyclines, macrolides, aminoglycosides) but also sulphonamides and quinolones.

The total number of analyses carried out in 2018 for antimicrobials in targeted samples was 105,389 of which 179 (0.17%) were non-compliant (218 non-compliant results) (Table 1). The highest frequency of non-compliant samples for antibacterials was observed in honey (0.82%) (Figure 2).

It is important to mention that in some Member States there are specific control programmes which use microbiological tests (inhibitor tests). In some cases, a positive result in a microbiological test is sufficient to reject the sample. This may mean that no confirmation by a physico-chemical method is carried out and thus there is no conclusive identification of the substance concerned. In other cases, a positive result in the screening test is confirmed by means of an immunochemical or physico-chemical test and it is then possible to identify the substance and establish whether its concentration is above the MRL or not.

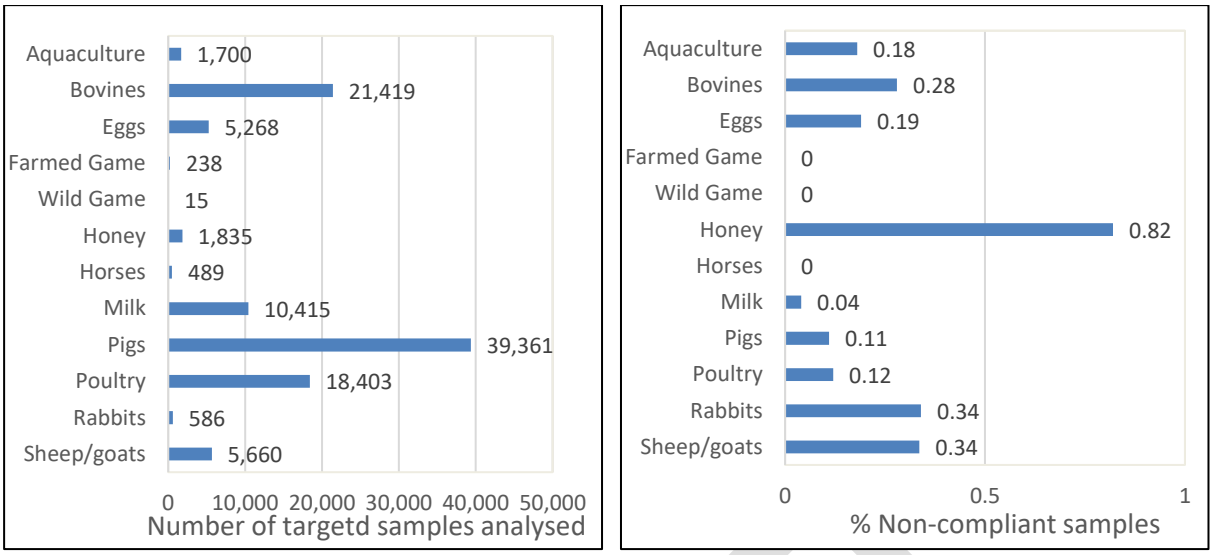


Figure 2: Number of targeted samples analysed and percentage of non-compliant samples for antibacterials (B1) in animal/product categories

More details on the number of samples analysed and the non-compliant samples found in each category are given in Sections 3.2 to 3.13 and in Appendix A.

3.1.5. Other veterinary drugs

The group 'other veterinary drugs' (B2) includes a variety of veterinary medicinal products classified according to their pharmacological action in:

- anthelmintics (B2a);
- anticoccidials (B2b);
- carbamates and pyrethroids (B2c);
- sedatives (B2d);
- non-steroidal anti-inflammatory drugs (NSAIDs) (B2e), and
- other pharmacologically active substances (B2f).

In the 2018 monitoring, 114,624 targeted samples were analysed for substances in the group B2 and 160 samples (0.14%) were non-compliant. The total number of targeted samples analysed for each subgroup in the group B2 and the percentage of non-compliant samples is presented in Figure 3. It is important to note that the frequency of analyses for substances in the B2 subgroups follows a different pattern in each species, depending on their animal specific therapeutic application. An overview of the number of samples analysed and the percentage of non-compliant samples for the B2 subgroups in the specific animal/product category is presented in Table 3.

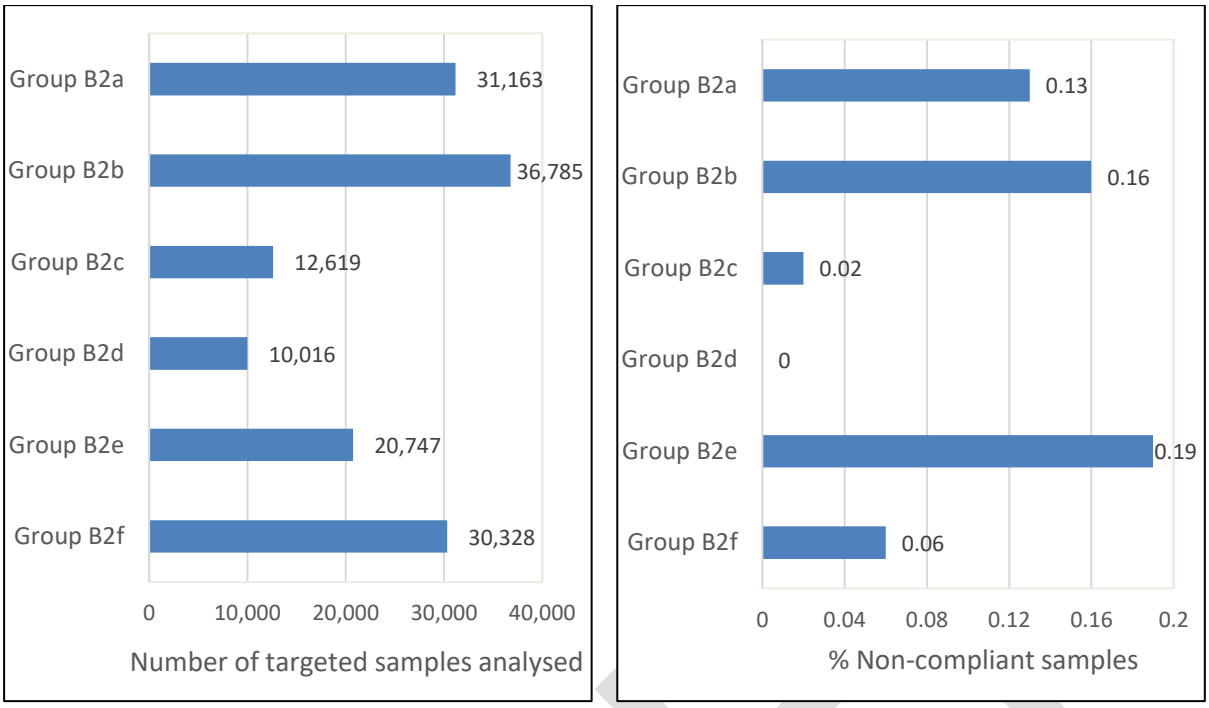


Figure 3: Number of targeted samples analysed within the group 'other veterinary drugs' (B2) and the percentage of non-compliant samples

Table 3: Number of targeted samples analysed for B2 subgroups in different animal categories and the frequency of non-compliant samples (percentage from the total number of samples analysed in each animal category)

Group	B2a % NC	B2a Samples	B2b % NC	B2b Samples	B2c % NC	B2c Samples	B2d % NC	B2d Samples	B2e % NC	B2e samples	B2f % NC	B2f samples
Aquaculture	0	655	0	403	0	373	0	3	0	3	0	417
Bovines	0.13	5,972	0.03	3,498	0	1,948	0	1,911	0.25	5,679	0.15	12,641
Eggs	0	1,389	0.65	5,098	0	1,558	0	49	0	1	0	1,845
Farmed game	0	185	0	142	0	90	0	8	0	64	0	43
Honey	0	434	0	126	0.2	1,005	0	16	0	1	0	804
Horses	0	208	0	138	0	161	0	215	1.03	677	0	251
Milk	0.09	6,899	0	1,800	0	348	0	88	0.25	4,713	0	902
Pigs	0.08	8,291	0.01	9,227	0	2,367	0	7,175	0.08	6,035	0	8,455
Poultry	0	3,722	0.17	13,736	0	2,429	0	202	0.11	1,780	0	3,950
Rabbits	0	135	0	240	0	68	0	3	0	64	0	91
Sheep/goats	0.67	3,131	0	2,373	0	2,244	0	343	0	1,724	0	917
Wild game	0	142	0	4	0	28	0	3	0	6	0	12

%NC: Percentage of non-compliant samples.

Regarding the number of samples analysed in each B2 subgroup, the highest proportion of non-compliant samples (0.19%) was observed for non-steroidal anti-inflammatory drugs (B2e), non-compliant samples were reported in bovines (0.25%), poultry (0.11%), horses (1.03%), pigs (0.08%) and milk (0.25%).

For anthelmintics (B2a), non-compliant samples were reported in bovines (0.13%), sheep and goats (0.67%), pigs (0.08%) and milk (0.09%).

Non-compliant samples for anticoccidials (B2b) were reported in bovines (0.03%), pigs (0.01%), poultry (0.17%) and eggs (0.65%).

For pyrethroids (B2c), two non-compliant samples were reported for honey only (0.20%).

No non-compliant samples were reported for sedatives (B2d).

For 'other pharmacologically active substances' (B2f), non-compliant samples were observed for bovines (0.15%): 19 non-compliant results were reported for corticosteroids by eight Member States and the substances identified were dexamethasone and prednisolone (Table 4). It is important to note that recent studies suggest that prednisolone could be produced endogenously by animals, especially by those found in a state of stress (Pompa et al., 2011; Fidani et al., 2012).

Table 4: Overview on corticosteroids non-compliant results (B2f)

Substance	Species/Product	Number of non-compliant results	Member State reporting non-compliant results
Dexamethasone	Bovines	18	Croatia, France, Germany, Italy, Netherlands, Poland, Spain
Prednisone	Bovines	1	Italy

3.1.6. Other substances and environmental contaminants

The group 'other substances and environmental contaminants' (B3) includes the following subcategories:

- organochlorine compounds including PCBs (B3a);
- organophosphorus compounds (B3b);
- chemical elements (B3c);
- mycotoxins (B3d);
- dyes (B3e), and
- others (B3f).

In the 2018, 43,891 samples were analysed for substances in group B3 of which 466 samples were non-compliant (1.06%) (486 non-compliant results). The total number of targeted samples analysed for each subgroup in group B3 and the percentage of non-compliant samples is presented in Figure 4. Similarly to group B2, the frequency of analyses for certain B3 subgroups is highly variable with the targeted animal/product category. While chemical contaminants (B3c) are analysed in all animal/product categories, dyes (B3e) are analysed only in aquaculture products. An overview of the number of samples analysed and the percentage of non-compliant samples for the B3 subgroups in the specific animal group and animal product category is presented in Table 5.

The highest percentage of non-compliant samples was found in almost all species, in the subgroup B3c 'chemical elements' (3.24%). Similar to previous years, cadmium, lead, mercury and copper were the chemical elements frequently identified as responsible for non-compliance.

Instances of non-compliance for organochlorine compounds (B3a) and organophosphorus compounds (B3b) were 0.16% and 0.03%, respectively.

There were non-compliant samples reported in subgroup B3d mycotoxins (n = 14; 0.15%), for bovines (n = 3; 0.11%), pigs (n = 8; 0.27%), horses (n = 1; 1.19%), rabbits (n = 1; 4.76%) and poultry (n = 1; 0.07%). Those identified being zearalenone and aflatoxin B_1.

Dyes (B3e) were reported in aquaculture (21 non-compliant samples; 1.24%). Substances found were leuco-malachite green, crystal violet, sum of brilliant green and brilliant green-leuco and sum of malachite green and leuco-malachite green.

There were non-compliant samples reported in subgroup B3f 'others' (n = 11; 0.17%), for honey (n = 3; 0.38%), pigs (n = 2; 0.13%) and eggs (n = 6; 0.33%). Those identified being fipronil, difenoconazole, flonicamid.

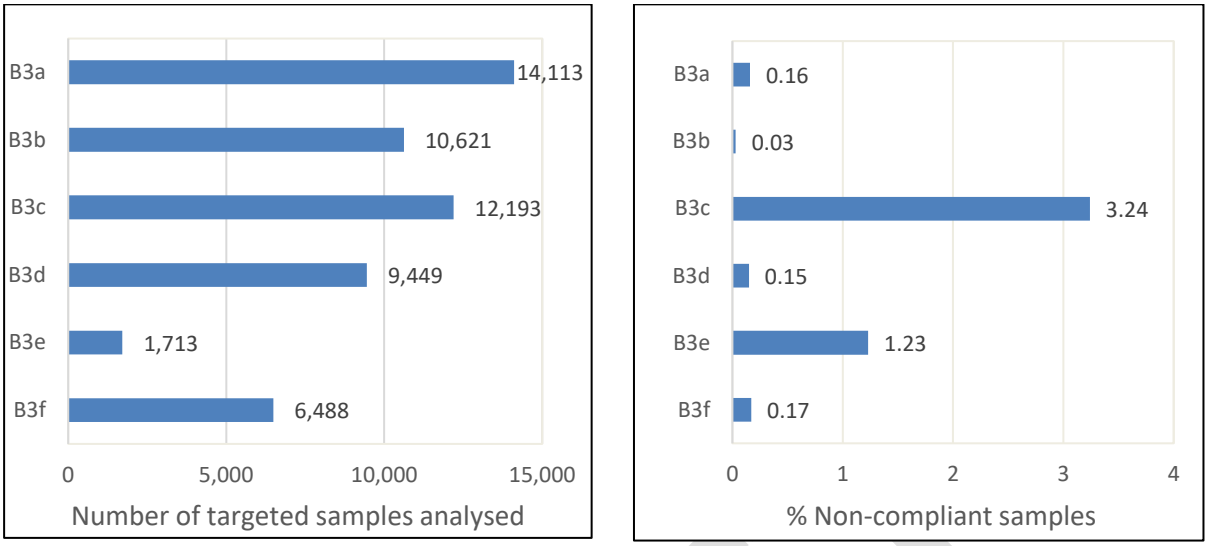


Figure 4: Number of samples analysed within the group 'other substances and environmental contaminants' (B3) and the percentage of non-compliant samples

Table 5: Number of targeted samples analysed for B3 subgroups in different animal and product categories and the frequency of non-compliant samples (percentage from the total number of samples analysed in each animal/product category)

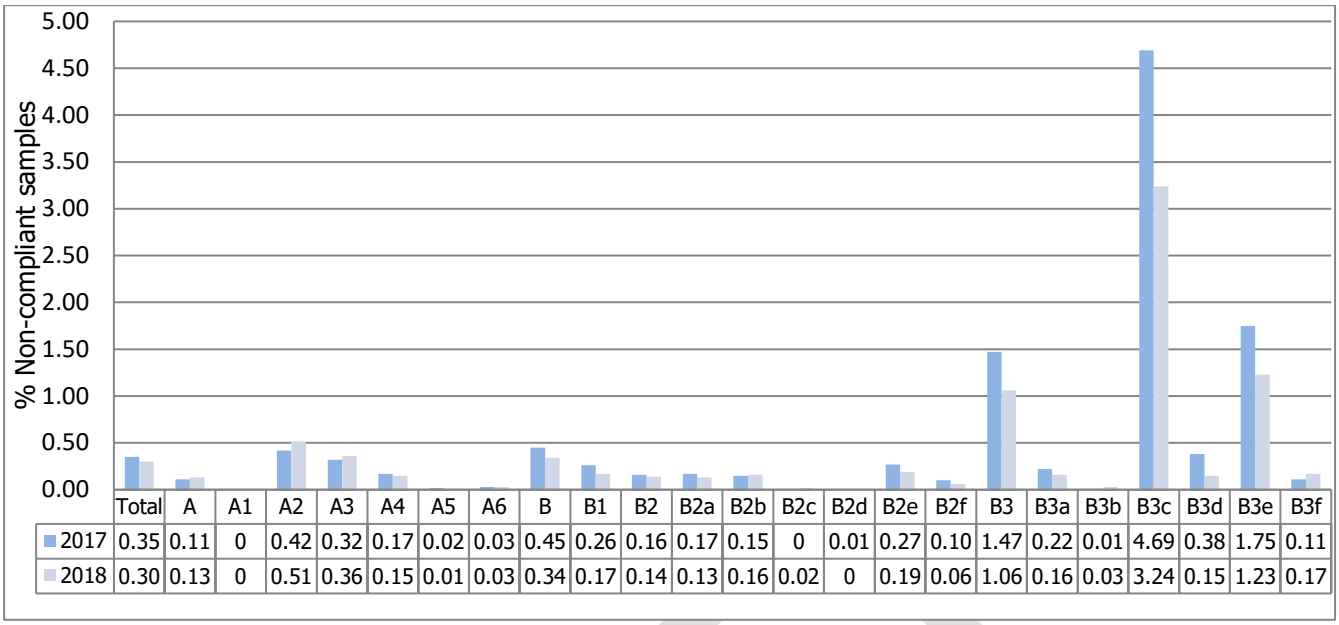
Group	B3a % NC	B3a samples	B3b % NC	B3b samples	B3c % NC	B3c samples	B3d % NC	B3d samples	B3e % NC	B3e samples	B3f % NC	B3f samples
Aquaculture	0.42	479	0	164	0.22	463	0	146	1.24	1,699	0	154
Bovines	0	2,102	0	1,795	5.5	1,982	0.11	2,800	0	14	0	646
Farmed game	5.3	151	0	45	4.91	652	0	17	NA	NA	0	26
Sheep/goats	0.68	592	0.1	1,020	4.22	498	0	255	NA	NA	0	125
Honey	0.1	961	0	1,018	7.11	408	0	6	NA	NA	0.38	799
Horses	0	160	0	124	2.96	473	1.19	84	NA	NA	0	44
Pigs	0	3,946	0.7	2,812	2.37	3,753	0.27	2,974	NA	NA	0.13	1,524
Poultry	0.12	2,497	0	1,377	0.3	1,668	0.07	1,506	NA	NA	0	1,100
Rabbits	0	70	0	32	3.37	89	4.76	21	NA	NA	0	21
Wild game	3.42	117	0	29	5.7	1,562	NA	NA	NA	NA	0	36
Milk	0	1,431	0	1,185	0.55	549	0	1,636	NA	NA	0	201
Eggs	0.06	1,607	0	1,020	0	96	0	4	NA	NA	0.33	1,812

%NC: percentage of non-compliant samples
NA: not applicable

More details on the number of samples analysed and non-compliant samples in each category are given in the Sections 3.2 to 3.13 and in Appendix A.

3.1.7. Multi-year comparison

As this is the second year that the monitoring data were reported to EFSA using the SSD (Version 2.0) format (see Section 2 on Data and Methodologies), comparisons have been performed only between the results from 2017 and 2018. Detailed comparisons with those from earlier years have not been performed due to differences in the reporting and calculation methods.



	Total	A	A1	A2	A3	A4	A5	A6	B	B1	B2	B2a	B2b	B2c	B2d	B2e	B2f	B3	B3a	B3b	B3c	B3d	B3e	B3f
2017	0.35	0.11	0	0.42	0.32	0.17	0.02	0.03	0.45	0.26	0.16	0.17	0.15	0	0.01	0.27	0.10	1.47	0.22	0.01	4.69	0.38	1.75	0.11
2018	0.30	0.13	0	0.51	0.36	0.15	0.01	0.03	0.34	0.17	0.14	0.13	0.16	0.02	0	0.19	0.06	1.06	0.16	0.03	3.24	0.15	1.23	0.17

Figure 5: Percentage of non-compliant samples reported in relation to the total number of targeted samples analysed for the respective group in 2017 and 2018 (substance groups are detailed in Appendix E)

Overall, the percentage of non-compliant samples in 2018 (0.30%) was comparable to the previous 10 years (0.25%-0.37%), although slightly lower compared to 2017 (0.35%).

Compared to the results from 2017, in 2018 the frequency of non-compliant results was slightly increased for antithyroid agents (A2), steroids (A3), and 'others' (B3f). Slight decreases were noted for antibacterials (B1), anthelmintics (B2a), non-steroidal anti-inflammatory drugs (NSAIDs) (B2e), 'other pharmacologically active substances' (B2f), organochlorine compounds (B3a), chemical elements (B3c), mycotoxins (B3d) and dyes (B3e). For the other substance groups, there were no notable variations (see Figure 5).

3.2. Bovines

Council Directive 96/23/EC requires that the minimum number of bovine animals to be controlled each year for all kinds of residues and substances is 0.4% of the bovine animals slaughtered the previous year. The minimum requirements for the number of samples were not fulfilled in 2018 for the EU overall (Table 6), while they were fulfilled by the majority of the Member States (Table 7). Bulgaria, Croatia, France, Hungary, Lithuania, Poland, Portugal, Romania, Spain and Sweden did not achieve the minimum sampling frequency for bovines.

Table 6: Production of bovines and number of targeted samples over 2007–2018

Year	Production (animals)	Targeted samples	% Animals tested[(a)]	Minimum 96/23/EC
2007 (EU 27)	27,087,367	129,201	0.47	
2008 (EU 27)	26,898,702	122,648	0.48	
2009 (EU 27)	26,677,946	127,897	0.48	
2010 (EU 27)	26,267,917	128,130	0.48	
2011 (EU 27)	26,566,593	126,540	0.48	
2012 (EU 27)	25,759,645	130,554	0.49	
2013 (EU 28)	25,481,237	126,307	0.49	0.4
2014 (EU 28)	25,315,582	125,552	0.49	
2015 (EU 28)	25,463,018	127,187	0.50	
2016 (MS 27[(b)])	21,414,980	109,881	0.53	
2016 (EU 28)	*26,099,292*			
2017 (EU 28)	26,394,612	102,647	0.39[(c)]	
2018 (EU 28)	26,688,499	100,784	0.38	

(a): in relation to the production of the previous year;
(b): data from France was not available for inclusion in the 2016 results report;
(c): calculated based on 2016 production data from 28 Member States (MS).

Table 7: Production volume and number of targeted samples collected in bovines

Country	Production data[(a)] (animals)	Number of samples 2018	Animal tested (%)
Austria	678,258	3,827	0.56
Belgium	913,745	5,881	0.64
Bulgaria	33,976	86	0.25
Croatia	184,675	709	0.38
Cyprus	16,578	119	0.72
Czechia	250,740	1,413	0.56
Denmark	476,109	1,922	0.40
Estonia	37,701	190	0.50
Finland	279,800	1,229	0.44
France	4,664,226	9,874	0.21
Germany	3,569,180	14,208	0.40
Greece	103,782	492	0.47
Hungary	110,202	397	0.36
Ireland	1,799,889	7,492	0.42
Italy	2,529,329	11,878	0.47
Latvia	79,862	340	0.43
Lithuania	157,289	579	0.37
Luxembourg	26,082	111	0.43
Malta	4,086	62	1.52
Netherlands	2,148,200	9,161	0.43
Poland	1,991,291	7,040	0.35
Portugal	379,392	910	0.24
Romania	277,739	1,045	0.38
Slovakia	31,366	322	1.03
Slovenia	118,235	514	0.43
Spain	2,373,850	8,137	0.34
Sweden	406,030	1,596	0.39
United Kingdom	2,753,000	11,250	0.41
Total (EU 28)	**26,394,612**	**100,784**	**0.38**

(a): The production data was used for the preparation of the 2018 Residue Control Plan and may pertain to the years 2016 or 2017.

The distribution of samples analysed, non-compliant samples and non-compliant results in bovines are presented in Table 8. Of the 100,784 samples analysed in this category, 322 (0.32%) were non-compliant (369 non-compliant results). The non-compliant samples were reported by 18 Member States.

Table 8: Number of samples analysed, non-compliant samples and non-compliant results in bovines

Substance group[a]	Samples analysed[b]	% Samples analysed	Non-compliant samples[c]	% Non-compliant samples	Non-compliant results[d]
A	64,752	64.2	107	0.17	133
A1	12,471	12.4	0	0	0
A2	4,119	4.1	35	0.85	37
A3	24,714	24.5	40	0.16	46
A4	10,259	10.2	22	0.21	39
A5	16,253	16.1	3	0.02	4
A6	18,316	18.2	7	0.04	7
B	54,032	53.6	251	0.40	236
B1	21,419	21.3	61	0.28	79
B2	28,378	28.2	42	0.15	43
B2a	5,972	5.9	8	0.13	8
B2b	3,498	3.5	1	0.03	1
B2c	1,948	1.9	0	0	0
B2d	1,911	1.9	0	0	0
B2e	5,679	5.6	14	0.25	15
B2f	12,641	12.5	19	0.15	19
B3	7,986	7.9	112	1.40	114
B3a	2,102	2.1	0	0	0
B3b	1,795	1.8	0	0	0
B3c	1,982	2.0	109	5.5	111
B3d	2,800	2.8	3	0.11	3
B3e	14	0	0	0	0
B3f	646	0.6	0	0	0
Total	**100,784**	**100**	**322**	**0.32**	**369**

(a): as detailed in Appendix E;
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

There were no non-compliant samples reported in group A1.

In the group A2, five Member States reported a total of 35 non-compliant samples (37 non-compliant results), all for thiouracil and 6-methyl-2-thiouracil.

In the group A3, a total of 40 non-compliant samples (46 non-compliant results) were reported. Among the substances identified, the highest number of non-compliant results were noted for epinandrolone (n =18).

In the group A4, two Member States reported 22 non-compliant samples (39 non-compliant results) relating to alpha-zearalanol (n = 17 non-compliant results) and beta-zearalanol (n = 22 non-compliant results).

There were 3 non-compliant samples (4 non-compliant results) reported in Group A5: for salbutamol (n = 1), sotalol hydrochloride (n = 1), terbutaline (n = 1) and tulobuterol (n = 1) by three Member States.

In Group A6, there were seven non-compliant samples and results, reported for chloramphenicol, by three Member States.

For antibacterials (B1), 12 Member States reported a total of 61 non-compliant samples (79 non-compliant results). Among the substances identified, the sum of oxytetracycline and its 4-epimer was the most frequent one (14 non-compliant results).

In Group B2, there were eight non-compliant samples and results for anthelmintics (B2a), one non-compliant sample and result reported for anticoccidials (B2b), 14 non-compliant samples (15 non-

compliant results) were reported by five Member States for non-steroidal anti-inflammatory drugs (NSAIDs) (B2e), and 19 non-compliant samples and results were reported by seven Member States for steroidal anti-inflammatory drugs (B2f). Dexamethasone was the most frequently reported substance in B2f (n = 18 non-compliant results).

In the group B3, there were 109 non-compliant samples and results for chemical elements (including heavy metals) (B3c) and 3 non-compliant samples for mycotoxins (B3d); all for zearalenone. Within the 109 non-compliant samples and results for chemical elements (B3c), there were 72 non-compliant results for copper (reported by two Member States), 33 for cadmium (reported by six Member States), three for mercury (reported by one Member State), and three for lead (reported by three Member States).

A detailed presentation on the specific substances identified and the number of non-compliant results reported by each Member State is given in Appendix A.

3.3. Pigs

Council Directive 96/23/EC requires that the minimum number of pigs that have to be controlled each year for all kinds of residues and substances is 0.05% of the pigs slaughtered the previous year. The minimum requirements for the number of samples to be taken were fulfilled in 2018 for the EU overall (Table 9), and by the majority of Member States (Table 10). Bulgaria, France, Greece, Lithuania, Poland, Romania and Spain did not achieve the minimum sampling frequency for pigs.

Table 9: Production of pigs and number of targeted samples over 2007–2018

Year	Production (animals)	Targeted samples	% Animals tested[a]	Minimum 96/23/EC
2007 (EU 27)	241,501,638	144,378	0.06	0.05
2008 (EU 27)	244,965,996	137,281	0.06	
2009 (EU 27)	242,260,526	138,137	0.06	
2010 (EU 27)	245,149,546	136,792	0.06	
2011 (EU 27)	249,082,904	133,255	0.05	
2012 (EU 27)	246,691,569	135,745	0.05	
2013 (EU 28)	243,680,241	131,565	0.05	
2014 (EU 28)	244,508,972	135,129	0.06	
2015 (EU 28)	251,197,203	130,012	0.05	
2016 (MS 27[b])	229,09 0,419	121,953	0.05	
2016 (EU 28)	*252,921,158*			
2017 (EU 28)	252,107,558	125,810	0.05[c]	
2018 (EU 28)	255,405,402	120,434	0.05	

(a): in relation to the production of the previous year;
(b): data from France were not available for inclusion in the 2016 results report;
(c): calculated based on 2016 production data from 28 Member States (MS).

Table 10: Production volume and number of targeted samples collected in pigs

Country	Production data[(a)] (animals)	Number of samples 2018	Animals tested (%)
Austria	5,124,007	3,188	0.06
Belgium	11,212,480	5,800	0.05
Bulgaria	957,210	332	0.03
Croatia	1,028,506	544	0.05
Cyprus	558,441	326	0.06
Czechia	2,342,854	1,856	0.08
Denmark	17,518,433	8,993	0.05
Estonia	524,227	536	0.10
Finland	2,051,475	1,402	0.07
France	23,312,964	5,650	0.02
Germany	58,610,819	29,918	0.05
Greece	1,111,699	490	0.04
Hungary	4,684,183	2,269	0.05
Ireland	3,326,420	2,562	0.08
Italy	11,357,851	5,731	0.05
Latvia	410,703	196	0.05
Lithuania	790,870	320	0.04
Luxembourg	152,949	78	0.05
Malta	55,202	59	0.11
The Netherlands	15,070,700	7,837	0.05
Poland	22,241,956	9,908	0.04
Portugal	4,376,876	2,291	0.05
Romania	4,240,568	1,856	0.04
Slovakia	528,877	375	0.07
Slovenia	245,216	175	0.07
Spain	47,344,782	21,225	0.04
Sweden	2,576,290	1,296	0.05
The United Kingdom	10,351,000	5,221	0.05
Total (EU 28)	**252,107,558**	**120,434**	**0.05**

(a): The production data was used for the preparation of the 2018 Residue Control Plan and may pertain to the years 2016 or 2017.

The distribution of samples analysed, non-compliant samples and non-compliant results in pigs are presented in Table 11. Of the 120,434 samples analysed in this category, 236 (0.20%) were non-compliant (318 non-compliant results). The non-compliant samples were reported by 18 Member States.

Table 11: Number of targeted samples analysed, non-compliant samples and non-compliant results in pigs

Substance group[(a)]	Samples analysed[(b)]	% Samples analysed	Non-compliant samples[(c)]	% Non-compliant samples	Non-compliant results[(d)]
A	67,982	56.4	81	0.12	141
A1	7,064	5.9	0	0	0
A2	3,222	2.7	2	0.06	2
A3	10,590	8.8	77	0.73	137
A4	5,222	4.3	1	0.02	1
A5	9,964	8.3	0	0	0
A6	40,042	33.2	1	0.02	1
B	83,590	69.4	157	0.19	177
B1	39,361	32.7	43	0.11	47
B2	37,431	31.1	13	0.03	16
B2a	8,291	6.9	7	0.08	10
B2b	9,227	7.7	1	0.01	1
B2c	2,367	2	0	0	0
B2d	7,175	6	0	0	0
B2e	6,035	5	5	0.08	5
B2f	8,455	7	0	0	0
B3	11,993	10	101	0.84	114
B3a	3,946	3.3	0	0	0
B3b	2,812	2.3	2	0.07	2
B3c	3,753	3.1	89	2.37	102
B3d	2,974	2.5	8	0.27	8
B3e	NA	NA	NA	NA	NA
B3f	1,524	1.3	2	0.13	2
Total	**120,434**	**100**	**236**	**0.20**	**318**

(a): as detailed in Appendix E;
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

In group A, two non-compliant samples and results were reported against antithyroid agents (A2) for thiouracil, by two Member States. In the group A3, six Member States reported 77 non-compliant samples (137 non-compliant results) for steroids, including boldenone, estradiol-17-beta, nandrolone and normethandrolone. In the group A4, one Member State reported one non-compliant sample and result for alpha-zearalenol. In Group A6, there was one non-compliant sample and result for chloramphenicol.

For antibacterials (B1), 16 Member States reported a total of 43 non-compliant samples (47 non-compliant results).

In Group B2, there were 7 non-compliant samples (10 non-compliant results) for anthelmintics (B2a), one non-compliant sample and result for anticoccidials (B2b) and five non-compliant samples and results for non-steroidal anti-inflammatory drugs (NSAIDs) (B2e).

In the group B3, there were 89 non-compliant samples (102 non-compliant results) for chemical elements (B3c), reported by two Member States.. In addition, non-compliant results were reported by one Member State for B3b (organophosphorus compounds; n = 2), B3d (mycotoxins; n = 8) () and for B3f ("others"; n = 2)

The specific substances identified and the number of non-compliant results reported by each Member State, are presented in Appendix A.

3.4. Sheep and goats

Council Directive 96/23/EC requires that the minimum number of sheep and goats that have to be controlled each year for all kinds of residues and substances is 0.05% of the sheep and goats slaughtered the previous year. The minimum requirements for the number of samples were fulfilled in in 2018 for the EU overall (Table 12), and by the majority of Member States (Table 13). Bulgaria, France, Germany and Portugal did not achieve the minimum sampling frequency for sheep and goats.

Table 12: Production of sheep and goats and number of targeted samples over 2007–2018

Year	Production (animals)	Targeted samples	% Animals tested[a]	Minimum 96/23/EC
2007 (EU 27)	40,935,665	26,599	0.06	
2008 (EU 27)	41,435,268	24,320	0.06	
2009 (EU 27)	39,584,954	26,265	0.06	
2010 (EU 27)	36,121,283	23,894	0.06	
2011 (EU 27)	37,217,484	23,112	0.06	
2012 (EU 27)	36,558,080	23,441	0.06	0.05
2013 (EU 28)	35,831,474	22,761	0.06	
2014 (EU 28)	36,188,624	26,218	0.07	
2015 (EU 28)	31,554,480	21,420	0.06	
2016 (MS 27[b])	26,783,426	16,846	0.06	
2016 (EU 28)	*31,274,756*			
2017 (EU 28)	31,160,255	16,348	0.05[c]	
2018 (EU 28)	32,094,485	15,927	0.05	

(a): in relation to the production of the previous year;
(b): data from France were not available for inclusion in the 2016 results report;
(c): calculated based on 2016 production data from 28 Member States (MS).

Table 13: Production volume and number of targeted samples collected in sheep and goats

Country	Production data[(a)] (animals)	Number of samples 2018	Animal tested (%)
Austria	136,539	352	0.26
Belgium	155,449	215	0.14
Bulgaria	141,037	32	0.02
Croatia	88,070	58	0.07
Cyprus	253,957	132	0.05
Czechia	17,149	69	0.40
Denmark	79,240	43	0.05
Estonia	6,774	20	0.30
Finland	57,959	42	0.07
France	4,436,115	896	0.02
Germany	1,042,042	460	0.04
Greece	339,454	333	0.10
Hungary	53,726	49	0.09
Ireland	3,040,660	1,805	0.06
Italy	395,046	516	0.13
Latvia	25,030	13	0.05
Lithuania	8,947	13	0.15
Luxembourg	2,680	11	0.41
Malta	6,995	25	0.36
Netherlands	663,200	364	0.05
Poland	42,367	95	0.22
Portugal	896,835	391	0.04
Romania	861,024	401	0.05
Slovakia	75,276	104	0.14
Slovenia	12,394	39	0.31
Spain	3,108,680	1,755	0.06
Sweden	261,610	136	0.05
United Kingdom	14,952,000	7,558	0.05
Total (EU 28)	**31,160,255**	**15,927**	**0.05**

(a): The production data was used for the preparation of the 2018 Residue Control Plan and may pertain to the years 2016 or 2017.

The distribution of samples analysed, non-compliant samples and non-compliant results in sheep and goats is presented in Table 14. Of the 15,927 samples analysed in this category, 107 (0.67%) were non-compliant (119 non-compliant results). The non-compliant samples were reported by 17 Member States.

Table 14: Number of targeted samples analysed, non-compliant samples and non-compliant results in sheep and goats

Substance group[(a)]	Samples analysed[(b)]	% Samples analysed	Non-compliant samples[(c)]	% Non-compliant samples	Non-compliant results[(d)]
A	4,222	26.5	41	0.97	46
A1	718	4.5	0	0	0
A2	206	1.3	6	2.91	6
A3	989	6.2	30	3.03	31
A4	311	2	4	1.29	8
A5	608	3.8	0	0	0
A6	2,129	13.4	1	0.05	1
B	13,359	83.9	66	0.49	73
B1	5,660	35.5	19	0.34	21
B2	5,954	37.4	21	0.35	25
B2a	3,131	19.7	21	0.67	25
B2b	2,373	14.9	0	0	0
B2c	2,244	14.1	0	0	0
B2d	343	2.2	0	0	0
B2e	1,724	10.8	0	0	0
B2f	917	5.8	0	0	0
B3	2,166	13.6	26	1.20	27
B3a	592	3.7	4	0.68	4
B3b	1,020	6.4	1	0.1	1
B3c	498	3.1	21	4.22	22
B3d	255	1.6	0	0	0
B3e	NA	NA	NA	NA	NA
B3f	125	0.8	0	0	0
Total	**15,927**	**100**	**107**	**0.67**	**119**

NA: not applicable.
(a): as detailed in Appendix E;
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

In group A, six non-compliant samples and results were reported against antithyroid agents (A2) for thiouracil, by two Member States. Thirty non-compliant samples and 31 non-compliant results were reported for steroids (A3), (boldenone-alpha (n = 24), epinandrolone (n = 5), for nandrolone (n = 1), norethandrolon (n=1)), by three Member States. In the group A4, one Member State reported four non-compliant samples (8 non-compliant results) for alpha-/beta-zearalanol. One Member State reported one non-compliant sample and results for the group A6, relating to semicarbazide.

For antibacterials (B1), ten Member States reported a total of 19 non-compliant samples (21 non-compliant results). The substance with the highest number of non-compliant results was sulfadiazine (n = 8).

In the group B2, 21 non-compliant samples (25 non-compliant results) were reported for anthelmintics (B2a). The substance with the highest number of non-compliant results was closantel (n = 16).

In the group B3, the non-compliant results were distributed as follows: four for organochlorine compounds (B3a), one for organophosphorus compounds (B3b) and 22 for heavy metals (B3c) (13 for copper, six for cadmium and three for lead).

A detailed presentation on the specific substances identified and the number of non-compliant results reported by each Member State is given in Appendix A.

3.5. Horses

For horses, Council Directive 96/23/EC requires that the number of samples is to be determined by each Member State in relation to the identified problem. The number of targeted samples taken in 2018 at EU level was slightly lower compared to previous years (Table 15). The percentage of targeted samples taken in each Member State for the reported horse production is presented in Table 16.

Table 15: Production of horses and number of targeted samples over 2007–2018

Year	Production (animals)	Targeted samples	% Animals tested[a]	Minimum 96/23/EC
2007 (EU 27)	312,969	3,115	1.16	Not specified
2008 (EU 27)	386,302	2,545	0.81	
2009 (EU 27)	264,538	3,000	0.78	
2010 (EU 27)	258,362	3,094	1.17	
2011 (EU 27)	249,403	3,309	1.28	
2012 (EU 27)	272,286	3,850	1.54	
2013 (EU 28)	284,035	4,453	1.63	
2014 (EU 28)	215,629	4,112	1.45	
2015 (EU 28)	190,540	3,749	1.74	
2016 (MS 27[b])	177,309	3,320	1.90	
2016 (EU 28)	*191,678*			
2017 (EU 28)	186,330	3,232	1.69[c]	
2018 (EU 28)	174,721	3,137	1.68	

(a): in relation to the production of the previous year;
(b): data from France were not available for inclusion in the 2016 results report;
(c): calculated based on 2016 production data from 28 Member States (MS).

Table 16: Production volume and number of targeted samples collected for horses

Country	Production data[(a)] (animals)	Number of samples 2018	Animal tested (%)
Austria	546	53	9.71
Belgium	6,086	360	5.92
Bulgaria	87	10	11.49
Croatia	269	24	8.92
Cyprus	0	NA	NA
Czechia	141	33	23.4
Denmark	1,361	62	4.56
Estonia	10	NA	NA
Finland	1,284	49	3.82
France	10,940	239	2.18
Germany	7,615	133	1.75
Greece	0	NA	NA
Hungary	995	33	3.32
Ireland	7,917	465	5.87
Italy	25,151	459	1.82
Latvia	76	11	14.47
Lithuania	637	10	1.57
Luxembourg	0	NA	NA
Malta	2	4	200
Netherlands	2,300	66	2.87
Poland	25,923	309	1.19
Portugal	918	20	2.18
Romania	33,743	216	0.64
Slovakia	0	NA	NA
Slovenia	1,688	40	2.37
Spain	53,814	249	0.46
Sweden	2,270	196	8.63
United Kingdom	2,557	96	3.75
Total (EU 28)	**186,330**	**3,137**	**1.68**

NA: not applicable.
(a): The production data was used for the preparation of the 2018 Residue Control Plan and may pertain to the years 2016 or 2017.

The distribution of samples analysed, non-compliant samples and non-compliant results in horses is presented in Table 17. Of the 3,137 samples analysed in this category, 23 samples (0.73%) were non-compliant (29 non-compliant results). The non-compliant samples were reported by 7 Member States.

Table 17: Number of targeted samples analysed, non-compliant samples and non-compliant results in horses

Substance group[(a)]	Samples analysed[(b)]	% Samples analysed	Non-compliant samples[(c)]	% Non-compliant samples	Non-compliant results[(d)]
A	1,051	33.5	2	0.19	4
A1	86	2.7	0	0	0
A2	58	1.8	0	0	0
A3	220	7	1	0.45	1
A4	92	2.9	1	1.09	3
A5	254	8.1	0	0	0
A6	494	15.7	0	0	0
B	2,608	83.1	22	0.84	25
B1	489	15.6	0	0	0
B2	1,504	47.9	7	0.47	7
B2a	208	6.6	0	0	0
B2b	138	4.4	0	0	0
B2c	161	5.1	0	0	0
B2d	215	6.9	0	0	0
B2e	677	21.6	7	1.03	7
B2f	251	8	0	0	0
B3	766	24.4	15	1.96	18
B3a	160	5.1	0	0	0
B3b	124	4	0	0	0
B3c	473	15.1	14	2.69	17
B3d	84	2.7	1	1.19	1
B3e	NA	NA	NA	NA	NA
B3f	44	1.4	0	0	0
Total	**3,137**	**100**	**23**	**0.73**	**29**

NA: not applicable.
(a): as detailed in Appendix E;
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

In group A, there were two non-compliant sample (four non-compliant results), one for steroids (A3) and one for resorcylic acid lactones (A4).

In the group B2, seven non-compliant samples and results were reported for NSAIDs (B2e).

In the group B3, 15 non-compliant samples (18 non-compliant results) were reported: 17 results for the chemical compounds subgroup B3c (14 results for cadmium and 3 for lead) and one for the mycotoxins subgroup B3d (Zearalenone).

A detailed presentation on the specific substances identified and the number of non-compliant results reported by each Member State is given in Appendix A.

3.6. Poultry

According to Directive 96/23/EC, the minimum number of samples for each category of poultry must be one per 200 t of annual production, with a minimum of 100 samples for each group of substances where annual production in the category concerned is over 5,000 t. The minimum requirement of one sample analysed per 200 t production was not achieved in 2018 for the EU overall (Table 18).

The percentage of targeted samples taken in each Member State for the reported production of poultry is given in Table 19. Bulgaria, France, Greece, Lithuania, Poland and Spain did not achieve this requirement.

Table 18: Production of poultry and number of targeted samples over 2007–2018

Year	Production (t)	Targeted samples	% Samples tested/ 200 t[(a)]	Minimum 96/23/EC
2007 (EU 27)	10,912,500	62,101	1.15	1/200 t
2008 (EU 27)	12,421,566	60,406	1.11	
2009 (EU 27)	11,383,434	61,989	1.00	
2010 (EU 27)	11,804,262	61,259	1.08	
2011 (EU 27)	12,417,108	65,942	1.12	
2012 (EU 27)	12,845,333	68,770	1.11	
2013 (EU 28)	12,930,555	71,186	1.11	
2014 (EU 28)	12,909,837	72,486	1.12	
2015 (EU 28)	13,394,013	71,223	1.10	
2016 (MS 27[(b)])	12,239,495	64,501	1.10	
2016 (EU 28)	*13,906,572*			
2017 (EU 28)	14,320,889	67,630	0.97[(c)]	
2018 (EU 28)	14,683,847	69,096	0.96	

(a): in relation to the production of the previous year;
(b): data from France were not available for inclusion in the 2016 results report;
(c): calculated based on 2016 production data from 28 Member States (MS).

Table 19: Production volume and number of targeted samples collected for poultry

Country	Production data (t)[(a)]	Number of samples 2018	Samples tested/200 t
Austria	121,587	816	1.3
Belgium	403,036	2,374	1.2
Bulgaria	114,400	347	0.6
Croatia	52,783	337	1.3
Cyprus	19,733	251	2.5
Czechia	156,376	1,031	1.3
Denmark	161,969	820	1.0
Estonia	18,810	200	2.1
Finland	124,673	626	1.0
France	1,578,616	4,120	0.5
Germany	1,512,926	9,193	1.2
Greece	238,474	595	0.5
Hungary	586,498	4,502	1.5
Ireland	177,354	1,368	1.5
Italy	1,389,000	6,733	1.0
Latvia	30,000	184	1.2
Lithuania	89,256	359	0.8
Luxembourg	0	NA	NA
Malta	3,676	154	8.4
Netherlands	1,047,721	5,436	1.0
Poland	2,030,076	8,406	0.8
Portugal	349,051	1,656	1.0
Romania	469,352	2,289	1.0
Slovakia	95,731	549	1.2
Slovenia	61,496	346	1.1
Spain	1,526,505	6,478	0.9
Sweden	156,790	836	1.1
United Kingdom	1,805,000	9,090	1.0
Total (EU 28)	**14,320,889**	**69,096**	**0.96**

NA: not applicable.
(a): The production data was used for the preparation of the 2018 Residue Control Plan and may pertain to the years 2016 or 2017.

The distribution of samples analysed, non-compliant samples and non-compliant results in poultry are presented in Table 20. Of the 69,096 samples analysed in this category, 68 (0.10%) were non-compliant (70 non-compliant results). The non-compliant samples were reported by 14 Member States.

Table 20: Number of targeted samples analysed, non-compliant samples and non-compliant results in poultry

Substance group[(a)]	Samples analysed[(b)]	% Samples analysed	Non-compliant samples[(c)]	% Non-compliant samples	Non-compliant results[(d)]
A	38,994	56.4	11	0.03	11
A1	3,385	4.9	0	0	0
A2	893	1.3	0	0	0
A3	5,448	7.9	4	0.07	4
A4	3,634	5.3	0	0	0
A5	5,310	7.7	1	0.02	1
A6	24,187	35	6	0.02	6
B	43,621	63.1	57	0.13	59
B1	18,403	26.6	22	0.12	24
B2	21,924	31.7	26	0.12	26
B2a	3,722	5.4	0	0	0
B2b	13,736	19.9	24	0.17	24
B2c	2,429	3.5	0	0	0
B2d	202	0.3	0	0	0
B2e	1,780	2.6	2	0.11	2
B2f	3,950	5.7	0	0	0
B3	6,601	9.6	9	0.14	9
B3a	2,497	3.6	3	0.12	3
B3b	1,377	2	0	0	0
B3c	1,668	2.4	5	0.3	5
B3d	1,506	2.2	1	0.07	1
B3e	NA	NA	NA	NA	NA
B3f	1,100	1.6	0	0	0
Total	**69,096**	**100**	**68**	**0.10**	**70**

(a): as detailed in Appendix E;
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

In group A, there were four non-compliant samples and results for steroids (A3), (for normethandrolone) reported by one Member State. One non-compliant sample and result was reported for beta-agonists (A5), (for clenbuterol). There weresix non-compliant samples and results reported for group A6, by four Member States: for AMOZ (n = 1), chloramphenicol (n = 4) and metronidazole (n = 1). In group A6, six non-compliant samples and results were reported, by four Member States: for AMOZ (n = 1), chloramphenicol (n = 4) and metronidazole (n = 1).

For antibacterials (B1), five Member States reported a total of 22 non-compliant samples (24 non-compliant results), with the most frequent substance reported being doxycycline (n = 17).

In the group B2, 24 non-compliant samples and results were reported for anticoccidials (B2b), and two non-compliant samples and results were reported for NSAIDs (B2e).

In the group B3, three non-compliant samples and results were reported for organochlorine compounds (B3a). Five non-compliant samples and results were reported under chemical elements (B3c) (copper). One non-compliant sample and result was reported for mycotoxins (B3d) and relates aflatoxin B_1.

The specific substances identified and the number of non-compliant results reported by each Member State are presented in Appendix A.

3.7. Aquaculture

Directive 96/23/EC specifies that the minimum number of samples to be collected each year must be at least one per 100 tonnes of annual production. The minimum requirements for the number of samples to be taken were not fulfilled in 2018 for the EU overall (Table 21). The production volume and the number of samples analysed in each Member State are given in Table 22. Bulgaria, Croatia, France, Greece, Latvia, Lithuania, Malta, Romania, Spain and Sweden did not analyse at least one sample/100 Production (t) of production.

Table 21: Production of aquaculture and number of targeted samples over 2007–2018

Year	Production (t)	Targeted samples	% Samples tested/ 100 t[a]	Minimum 96/23/EC
2007 (EU 27)	602,555	9,257	1.5	1/100 t
2008 (EU 27)	644,875	8,751	1.4	
2009 (EU 27)	627,109	8,606	1.3	
2010 (EU 27)	622,032	8,668	1.4	
2011 (EU 27)	655,772	8,241	1.3	
2012 (EU 27)	631,117	8,264	1.3	
2013 (EU 28)	614,191	7,971	1.3	
2014 (EU 28)	608,658	7,236	1.2	
2015 (EU 28)	633,541	7,246	1.2	
2016 (MS 27[b])	603,868	6,735	1.1	
2016 (EU 28)	*645,068*			
2017 (EU 28)	668,766	6,500	1.0[c]	
2018 (EU 28)	692,821	6,482	0.97	

(a): related to the production of the previous year;
(b): data from France were not available for inclusion in the 2016 results report;
(c): calculated based on 2016 production data from 28 Member States (MS).

Table 22: Production volume and number of targeted samples collected for aquaculture

Country	Production data (t)(a)	Number of samples 2018	Samples tested/ 100 t
Austria	3,503	225	6.4
Belgium	2,000	110	5.5
Bulgaria	7,267	51	0.7
Croatia	16,506	146	0.9
Cyprus	7,218	103	1.4
Czechia	20,140	211	1.1
Denmark	36,000	379	1.1
Estonia	868	18	2.1
Finland	14,413	171	1.2
France	41,200	120	0.3
Germany	19,358	244	1.3
Greece	98,281	584	0.6
Hungary	3,894	41	1.1
Ireland	17,005	171	1.0
Italy	54,750	685	1.3
Latvia	732	6	0.8
Lithuania	3,402	2	0.1
Luxembourg	0	NA	NA
Malta	2,363	22	0.9
The Netherlands	6,000	72	1.2
Poland	32,964	481	1.5
Portugal	5,100	66	1.3
Romania	8,443	72	0.9
Slovakia	95	125	131.6
Slovenia	1,826	28	1.5
Spain	66,692	471	0.7
Sweden	11,417	99	0.9
The United Kingdom	187,329	1,779	1.0
Total (EU 28)	**668,766**	**6,482**	**0.97**

NA: not applicable.
(a): The production data was used for the preparation of the 2018 Residue Control Plan and may pertain to the years 2015, 2016 or 2017.

The distribution of samples analysed, non-compliant samples and non-compliant results in aquaculture are presented in Table 23. Of the 6,482 samples analysed for aquaculture, 29 samples (and results) (0.45%) were non-compliant. The non-compliant samples were reported by ten Member States.

Table 23: Number of targeted samples analysed, non-compliant samples and non-compliant results in aquaculture

Substance group[(a)]	Samples analysed[(b)]	% Samples analysed	Non-compliant samples[(c)]	% Non-compliant samples	Non-compliant results[(d)]
A	2,278	35.1	2	0.09	2
A1	158	2.4	0	0	0
A2	NA	NA	NA	NA	NA
A3	342	5.3	0	0	0
A4	95	1.5	0	0	0
A5	89	1.4	0	0	0
A6	1,815	28	2	0.11	2
B	5,277	81.4	27	0.51	27
B1	1,700	26.2	3	0.18	3
B2	1,343	20.7	0	0	0
B2a	655	10.1	0	0	0
B2b	403	6.2	0	0	0
B2c	373	5.8	0	0	0
B2d	3	0.5	0	0	0
B2e	3	0.5	0	0	0
B2f	417	6.4	0	0	0
B3	2,717	41.9	24	0.88	24
B3a	479	7.4	2	0.42	2
B3b	164	2.5	0	0	0
B3c	463	7.1	1	0.22	1
B3d	146	2.3	0	0	0
B3e	1,699	26.2	21	1.24	21
B3f	154	2.4	0	0	0
Total	**6,482**	**100**	**29**	**0.45**	**29**

NA: not applicable
(a): as detailed in Appendix E;
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

For group A, two non-compliant samples and results were reported in group A6, for chloramphenicol.

In group B1, three non-compliant samples and results were reported, for flumequine, oxytetracycline and trimethoprim.

In the group B3, there were two non-compliant samples (and results) for organochlorine compounds (B3a) reported by one Member State and one non-compliant sample and result for chemical elements (B3c), relating to mercury. There were 21 non-compliant samples (and results), reported by six Member States, for dyes (B3e) (crystal violet, leuco-malachite green, 'sum of brilliant green and brilliant green-leuco', 'sum of malachite green and leucomalachite green').

The specific substances identified and the number of non-compliant results reported by each Member State are presented in Appendix A.

3.8. Milk

Commission Decision 97/747/EC lays down that the annual number of samples taken should be one per 15,000 tonnes of annual milk production, with a minimum of 300 samples. The minimum requirements for the number of samples to be taken, were fulfilled in 2018 by EU overall (Table 24) and by the majority of Member States. France did not achieve this requirement.

The production volume and the number of samples analysed in each Member State are given in Table 25.

Table 24: Production of milk and number of targeted samples over 2007–2018

Year	Production (t)	Targeted samples	% Samples tested/ 15,000 t[(a)]	Minimum 96/23/EC
2007 (EU 27)	142,461,705	51,571	5.3	
2008 (EU 27)	145,006,173	53,333	5.6	
2009 (EU 27)	141,669,974	54,063	5.6	
2010 (EU 27)	144,705,166	30,372	3.2	
2011 (EU 27)	143,022,677	29,592	3.1	
2012 (EU 27)	149,086,701	30,748	3.2	1/15,000 t
2013 (EU 28)	146,446,811	29,788	3.0	
2014 (EU 28)	147,794,431	29,533	3.0	
2015 (EU 28)	150,637,679	26,705	2.7	
2016 (MS 27[(b)])	121,134,877	23,934	2.9	
2016 (EU 28)	*145,701,788*			
2017 (EU 28)	154,860,990	19,451	2.0[(c)]	
2018 (EU 28)	156,201,391	19,059	1.8	

(a): related to the production of the previous year;
(b): data from France were not available for inclusion in the 2016 result report;
(c): calculated based on 2016 production data from 28 Member States (MS).

Table 25: Production volume and number of targeted samples collected for milk

Country	Production data (t)[a]	Number of samples 2018	Samples tested/15,000 t
Austria	143,380	353	36.9
Belgium	3,563,796	693	2.9
Bulgaria	521,337	221	6.4
Croatia	651,100	351	8.1
Cyprus	216,000	507	35.2
Czechia	2,955,000	334	1.7
Denmark	5,554,383	370	1.0
Estonia	783,155	425	8.1
Finland	2,339,600	307	2.0
France	25,305,185	678	0.4
Germany	31,388,472	2,114	1.0
Greece	1,807,852	614	5.1
Hungary	819,862	293	5.4
Ireland	7,450,524	1,245	2.5
Italy	11,516,183	1,536	2.0
Latvia	986,000	667	10.2
Lithuania	1,627,679	272	2.5
Luxembourg	376,000	330	13.2
Malta	43,856	310	106.0
Netherlands	14,583,731	956	1.0
Poland	13,330,379	2,489	2.8
Portugal	2,019,453	199	1.5
Romania	1,007,536	363	5.4
Slovakia	1,125,800	487	6.5
Slovenia	521,861	355	10.2
Spain	6,888,599	861	1.9
Sweden	2,816,660	270	1.4
United Kingdom	14,517,607	1,459	1.5
Totals (EU28)	**154,860,990**	**19,059**	**1.8**

(a): The production data was used for the preparation of the 2018 Residue Control Plan and may pertain to the years 2016 or 2017.

The distribution of samples analysed, non-compliant samples and non-compliant results in milk are presented in Table 26. Of the 19,059 milk samples analysed, 27 (0.14%) were non-compliant (27 non-compliant results). The non-compliant samples were reported by 15 Member States.

Table 26: Number of targeted samples analysed, non-compliant samples and non-compliant results in milk

Substance group[(a)]	Samples analysed[(b)]	% Samples analysed	Non-compliant samples[(c)]	% Non-compliant samples	Non-compliant results[(d)]
A	7,543	39.6	2	0.03	2
A1	NA	NA	NA	NA	NA
A2	22	0.1	0	0	0
A3	101	0.5	0	0	0
A4	NA	NA	NA	NA	NA
A5	217	1.1	0	0	0
A6	7,285	38.2	2	0.03	2
B	17,320	90.9	25	0.14	25
B1	10,415	54.6	4	0.04	4
B2	9,079	47.6	18	0.2	18
B2a	6,899	36.2	6	0.09	6
B2b	1,800	9.4	0	0	0
B2c	348	1.8	0	0	0
B2d	88	0.5	0	0	0
B2e	4,713	24.7	12	0.25	12
B2f	902	4.7	0	0	0
B3	4,237	22.2	3	0.07	3
B3a	1,431	7.5	0	0	0
B3b	1,185	6.2	0	0	0
B3c	549	2.9	3	0.55	3
B3d	1,636	8.6	0	0	0
B3e	NA	NA	NA	NA	NA
B3f	201	1.1	0	0	0
Total	**19,059**	**100**	**27**	**0.14**	**27**

NA: not applicable.
(a): as detailed in Appendix E;
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

In the group A, there were two non-compliant samples (two non-compliant results) for group A6 (chloramphenicol), reported by two Member States.

For antibacterials (B1), four Member States reported a total of 4 non-compliant samples (and results).

In the group B2, there were 18 non-compliant samples and results: 6 for anthelmintics (B2a) and 12 for NSAIDs (B2e).

In the group B3, there was 3 non-compliant samples and results for chemical elements (B3c), relating to lead, reported by two Member States.

More information on the specific substances identified and the number of non-compliant results reported by each Member State is given in Appendix A.

3.9. Eggs

The number of samples to be taken each year must be at least equal to one per 1,000 tonnes of annual egg production, with a minimum of 200 samples. The minimum requirements for the number of samples to be taken were fulfilled in 2018 for the EU overall (Table 27) and by the majority of Member States. France, Greece and Spain did not analyse at least one sample/1,000 tonnes of production. The production volume and the number of samples analysed in each Member State are given in Table 28.

Table 27: Production of eggs and number of targeted samples over 2007–2018

Year	Production (t)	Targeted samples	% Samples tested/ 1,000 t[a]	Minimum 96/23/EC
2007 (EU 27)	6,114,369	13,685	2.3	
2008 (EU 27)	6,021,476	10,859	1.8	
2009 (EU 27)	6,137,732	13,031	2.2	
2010 (EU 27)	6,101,039	12,715	2.1	
2011 (EU 27)	6,136,691	12,248	2.0	
2012 (EU 27)	6,070,174	12,596	2.1	1/1,000 t
2013 (EU 28)	6,070,334	13,323	2.2	
2014 (EU 28)	6,271,679	13,391	2.2	
2015 (EU 28)	6,255,410	13,158	2.1	
2016 (MS 27[b])	5,424,380	12,700	2.4	
2016 (EU 28)	*6,312,403*			
2017 (EU 28)	6,416,551	9,944	1.6[c]	
2018 (EU 28)	6,609,833	10,924	1.7	

(a): related to the production of the previous year;
(b): data from France were not available for inclusion in the 2016 result report;
(c): calculated based on 2016 production data from 28 Member States (MS).

Table 28: Production volume and number of targeted samples collected for eggs

Country	Production data (t)[(a)]	Number of samples 2018	Samples tested/1,000 t
Austria	126,145	219	1.7
Belgium	140,325	1,004	7.2
Bulgaria	56,956	141	2.5
Croatia	33,125	221	6.7
Cyprus	9,045	165	18.2
Czechia	75,460	250	3.3
Denmark	67,808	209	3.1
Estonia	12,538	199	15.9
Finland	73,550	201	2.7
France	900,900	239	0.3
Germany	812,000	1,238	1.5
Greece	115,567	101	0.9
Hungary	80,845	169	2.1
Ireland	48,179	274	5.7
Italy	812,700	1,161	1.4
Latvia	45,000	200	4.4
Lithuania	38,181	163	4.3
Luxembourg	2,000	105	52.5
Malta	5,165	160	31.0
Netherlands	565,493	684	1.2
Poland	500,109	877	1.8
Portugal	133,961	281	2.1
Romania	114,123	333	2.9
Slovakia	44,624	223	5.0
Slovenia	27,086	226	8.3
Spain	799,756	655	0.8
Sweden	118,190	203	1.7
United Kingdom	657,720	1,023	1.6
Totals (EU28)	**6,416,551**	**10,924**	**1.7**

(a): The production data was used for the preparation of the 2018 Residue Control Plan and may pertain to the years 2016 or 2017.

The distribution of samples analysed, non-compliant samples and non-compliant results in eggs is presented in Table 29. Of the 10,924 egg samples analysed, 51 (0.47%) were non-compliant (56 non-compliant results). The non-compliant samples were reported by 16 Member States.

Table 29: Number of targeted samples analysed, non-compliant samples and non-compliant results in eggs

Substance group[(a)]	Samples analysed[(b)]	% Samples analysed	Non-compliant samples[(c)]	% Non-compliant samples	Non-compliant results[(d)]
A	4,331	39.6	1	0.02	1
A1	NA	NA	NA	NA	NA
A2	NA	NA	NA	NA	NA
A3	NA	NA	NA	NA	NA
A4	NA	NA	NA	NA	NA
A5	NA	NA	NA	NA	NA
A6	4,331	39.6	1	0.02	1
B	10,191	93.3	50	0.49	55
B1	5,268	48.2	10	0.19	13
B2	6,589	60.3	33	0.5	35
B2a	1,389	12.7	0	0	0
B2b	5,098	46.7	33	0.65	35
B2c	1,558	14.3	0	0	0
B2d	49	0.4	0	0	0
B2e	1	0.01	0	0	0
B2f	1,845	16.9	0	0	0
B3	3,142	28.8	7	0.2	7
B3a	1,607	14.7	1	0.06	1
B3b	1,020	9.3	0	0	0
B3c	96	0.9	0	0	0
B3d	4	0.04	0	0	0
B3e	NA	NA	NA	NA	NA
B3f	1,812	16.6	6	0.33	6
Total	**10,924**	**100**	**51**	**0.47**	**56**

NA: not applicable.
(a): as detailed in Appendix E;
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

Directive 96/23/EC, Annex II requires Member States to monitor in the group A only, the residues of prohibited substances (A6). In this group A6, there was one non-compliant sample and result reported in 2018 for chloramphenicol.

For antibacterials (B1), 10 non-compliant samples (13 non-compliant results) were reported by five Member States: doxycycline (n = 2), enrofloxacin (n = 4), oxolinic acid (n = 1), sulfadiazine (n = 2), sulfadimethoxine (n = 1), tilmicosin (n=1) and trimethoprim (n = 2)

In the group B2, 33 non-compliant samples were found (35 non-compliant results) for anticoccidials (B2b). The most frequently reported substance was lasalocid (n = 9).

In the group B3, there was one non-compliant sample and result reported for group B3a and six non-compliant samples and results reported for group B3f in relation to fipronil, by three Member States.

More details on the specific substances identified and the number of non-compliant results reported by each Member State are given in Appendix A.

3.10. Rabbit

The number of samples to be taken each year must be equal to 10 per 300 tonnes of annual production (dead weight) for the first 3,000 tonnes, plus one sample for each additional 300 tonnes. The rate between the total targeted samples reported and the minimum number of samples that should be collected for the reported production, as specified in Commission Decision 97/747/EC, was calculated.

Table 30: Production of rabbit meat and number of targeted samples over 2007–2018

Year	Production (t)	Targeted samples
2007 (EU 27)	189,932	4,480
2008 (EU 27)	187,389	3,625
2009 (EU 27)	199,655	3,691
2010 (EU 27)	172,353	3,885
2011 (EU 27)	176,315	3,737
2012 (EU 27)	173,626	3,471
2013 (EU 28)	164,664	2,796
2014 (EU 28)	156,204	2,762
2015 (EU 28)	162,216	2,509
2016 (MS 27[(a)])	117,239	1,772
2016 (EU 28)	*159,527*	
2017 (EU 28)	148,112	1,717
2018 (EU 28)	143,917	1,654

(a): data from France were not available for inclusion in the 2016 results report.

To calculate the total number of samples that should be collected, two different equations were applied depending on the production volume, as follows:

a) For countries with production above 3,000 t

Total samples required = {(10/300 × 3,000) + [(Production reported in tonnes −3,000) × (1/300)]}

b) For countries with production below 3,000 t

Total samples required = Production reported in t × (10/300)

Countries with a rate "samples tested/required" equal to 1.0 or above completely fulfilled the requirements for sampling frequency. Countries with a value below 1.0 did not.

Production volume and number of targeted samples broken down by Member States are presented in Table 31. France, Greece and Portugal did not achieve the minimum sampling frequency requirement in 2018.

Table 31: Production volume and number of targeted samples collected for rabbit

Country	Production data (t)[(a)]	Number of samples 2018	Samples tested/required
Austria	0	NA	NA
Belgium	4,075	113	1.1
Bulgaria	13	5	11.5
Croatia	4	2	15.0
Cyprus	140	52	11.1
Czechia	1,085	41	1.1
Denmark	0	NA	NA
Estonia	0	NA	NA
Finland	0	NA	NA
France	39,023	111	0.5
Germany	544	32	1.8
Greece	1,979	44	0.7
Hungary	7,381	187	1.6
Ireland	0	NA	NA
Italy	31,415	309	1.6
Latvia	30	12	12.0
Lithuania	77	8	3.1
Luxembourg	8	9	33.8
Malta	73	32	13.2
Netherlands	30	5	5.0
Poland	6,134	122	1.1
Portugal	5,309	87	0.8
Romania	12	0	NA
Slovakia	9	52	173.3
Slovenia	15	20	40.0
Spain	50,753	411	1.6
Sweden	3	0	NA
United Kingdom	0	NA	NA
Total (EU 28)	**148,112**	**1,654**	**NA**

NA: not applicable.
(a): The production data was used for the preparation of the 2018 Residue Control Plan and may pertain to the years 2016 or 2017.

The distribution of samples analysed, non-compliant samples and non-compliant results in rabbit are presented in Table 32. Of the 1,656 samples analysed for rabbits, 7 (0.42%) were non-compliant (8 non-compliant results). The non-compliant samples were reported by four Member States.

Table 32: Number of targeted samples analysed, non-compliant samples and non-compliant results in rabbit

Substance group[(a)]	Samples analysed[(b)]	% Samples analysed	Non-compliant samples[(c)]	% Non-compliant samples	Non-compliant results[(d)]
A	580	35.1	2	0.34	2
A1	42	2.5	0	0	0
A2	21	1.3	1	4.76	1
A3	56	3.4	0	0	0
A4	38	2.3	1	2.63	1
A5	60	3.6	0	0	0
A6	405	24.5	0	0	0
B	1,231	74.4	6	0.49	6
B1	586	35.4	2	0.34	2
B2	551	33.3	0	0	0
B2a	135	8.2	0	0	0
B2b	240	14.5	0	0	0
B2c	68	4.1	0	0	0
B2d	3	0.2	0	0	0
B2e	64	3.9	0	0	0
B2f	91	5.5	0	0	0
B3	198	12.0	4	2.02	4
B3a	70	4.2	0	0	0
B3b	32	1.9	0	0	0
B3c	89	5.4	3	3.37	3
B3d	21	1.3	1	4.76	1
B3e	NA	NA	NA	NA	NA
B3f	21	1.3	0	0	0
Total	**1,654**	**100**	**7**	**0.42**	**8**

NA: not applicable.
(a): as detailed in Appendix E;
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

In group A, there were two non-compliant samples and results, one reported for antithyroid agents (A2) (thiouracil) and one reported for resorcylic acid lactones (A4) (zearalenol alpha).

In group B, there were two non-compliant samples and results for antibacterials (B1); the substances found were sulfadimethoxine (n = 1) and enrofloxacin (n = 1). There were no non-compliant samples for group B2. For group B3, three non-compliant samples and results were reported for chemical elements (B3c) (one for cadium and two for copper) and one non-compliant sample and result for mycotoxins (B3d).

More details on the specific substances identified and the number of non-compliant results reported by each Member State are given in Appendix A.

3.11. Farmed game

European Commission Decision 97/747/EC requires that the number of samples to be taken each year in the Member States to be at least 100. The minimum number of samples was set as a provisional rule to be reviewed in light of the information provided by the Member States on their production figures. For farmed game, a total of 1,594 targeted samples were collected in 2018 in the EU (Tables 33 and 34).

Table 33: Production of farmed game and number of targeted samples over 2007–2018

Year	Production (t)	Targeted samples
2007 (EU 27)	40,895	2,286
2008 (EU 27)	18,485	1,959
2009 (EU 27)	84,482	1,975
2010 (EU 27)	25,449	2,157
2011 (EU 27)	24,991	2,575
2012 (EU 27)	25,348	2,334
2013 (EU 28)	26,356	2,072
2014 (EU 28)	24,379	1,918
2015 (EU 28)	22,044	1,785
2016 (MS 27[(a)])	12,976	1,607
2016 (EU 28)	*46,623*	
2017 (EU 28)	229,431	1,635
2018 (EU 28)	12,293	1,594

(a): data from France were not available for inclusion in the 2016 results report.

Table 34: Production volume and number of targeted samples collected for farmed game

Country	Production data (t)[(a)]	Number of samples 2018
Austria	337	122
Belgium	115	76
Bulgaria	0	67
Croatia	10	62
Cyprus	4	NA
Czechia	184	94
Denmark	30	21
Estonia	0	NA
Finland	1,594	92
France	216,969	11
Germany	2,517	102
Greece	51	22
Hungary	54	26
Ireland	21	198
Italy	2,332	70
Latvia	14	13
Lithuania	5	3
Luxembourg	0	NA
Malta	0	NA
Netherlands	86	7
Poland	38	225
Portugal	0	58
Romania	121	60
Slovakia	0	77
Slovenia	2	12
Spain	25	4
Sweden	1,252	81
United Kingdom	3,670	91
Total (EU 28)	**229,431**	**1,594**

NA: not applicable.
(a): The production data was used for the preparation of the 2018 Residue Control Plan and may pertain to the years 2016 or 2017.

The distribution of samples analysed, non-compliant samples and non-compliant results in farmed game are presented in Table 35. Of the 1,594 samples analysed for farmed game, 40 (2.51%) were non-compliant (40 non-compliant results). The non-compliant samples were reported by seven Member States.

Table 35: Number of targeted samples analysed, non-compliant samples and non-compliant results in farmed game

Substance group[(a)]	Samples analysed[(b)]	% Samples analysed	Non-compliant samples[(c)]	% Non-compliant samples	Non-compliant results[(d)]
A	325	20.4	0	0	0
A1	32	2	0	0	0
A2	16	1	0	0	0
A3	33	2.1	0	0	0
A4	34	2.1	0	0	0
A5	71	4.5	0	0	0
A6	172	10.8	0	0	0
B	1,415	88.8	40	2.83	40
B1	238	14.9	0	0	0
B2	436	27.4	0	0	0
B2a	185	11.6	0	0	0
B2b	142	8.9	0	0	0
B2c	90	5.6	0	0	0
B2d	8	0.5	0	0	0
B2e	64	4	0	0	0
B2f	43	2.7	0	0	0
B3	802	50.3	40	4.99	40
B3a	151	9.5	8	5.3	8
B3b	45	2.8	0	0	0
B3c	652	40.9	32	4.91	32
B3d	17	1.1	0	0	0
B3e	NA	NA	NA	NA	NA
B3f	26	1.6	0	0	0
Total	**1,594**	**100**	**40**	**2.51**	**40**

NA: not applicable.
(a): as detailed in Appendix E;
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

No non-compliant samples were reported in group A, B1 and group B2.

In the group B3, non-compliant samples were reported for organochlorine compounds (B3a) and chemical elements (B3c). For subgroup B3a, eight non-compliant samples and results were reported, relating to hexachlorobenzene and 'sum of 6 PCB indicators'. For subgroup B3c, 32 non-compliant samples and results were reported for heavy metals as follows, cadmium (n = 23), lead (n = 6), copper (n = 1) and mercury (n = 2).

More details on the specific substances identified and the number of non-compliant results reported by each Member State are given in Appendix A.

3.12. Wild game

European Commission Decision 97/747/EC requires that the number of samples to be taken each year in the Member States to be at least 100 samples. Samples must be taken to analyse residues of chemical elements. For wild game, a total of 1,781 targeted samples were collected in 2018 in the EU (Tables 36 and 37).

Table 36: Production of wild game and number of targeted samples over 2007–2018

Year	Production (t)	Targeted samples
2007 (EU 27)	270,704	2,360
2008 (EU 27)	316,541	2,443
2009 (EU 27)	252,328	2,488
2010 (EU 27)	147,097	2,395
2011 (EU 27)	263,860	2,674
2012 (EU 27)	209,607	2,600
2013 (EU 28)	204,013	2,694
2014 (EU 28)	180,307	2,601
2015 (EU 28)	201,794	2,480
2016 (MS 27[(a)])	172,090	2,468
2016 (EU 28)	*3,394,896*	
2017 (EU 28)	469,359	1,760
2018 (EU 28)	390,891	1,781

(a): data from France were not available for inclusion in the 2016 results report.

Table 37: Production volume and number of targeted samples collected for wild game

Country	Production data (t)[(a)]	Number of samples 2018
Austria	9,231	186
Belgium	2,417	188
Bulgaria	70	NA
Croatia	10	NA
Cyprus	0	NA
Czechia	17,870	140
Denmark	565	17
Estonia	861	76
Finland	41	NA
France	3,128	2
Germany	84,455	93
Greece	2	24
Hungary	10,475	95
Ireland	458	NA
Italy	560	NA
Latvia	240	102
Lithuania	54	2
Luxembourg	450	100
Malta	0	NA
Netherlands	726	106
Poland	29,025	176
Portugal	2,166	NA
Romania	224	48
Slovakia	228,486	120
Slovenia	3,788	103
Spain	71,762	NA
Sweden	1,745	103
United Kingdom	550	100
Total (EU 28)	**469,359**	**1,781**

NA: not applicable.
(a): The production data was used for the preparation of the 2018 Residue Control Plan and may pertain to the years 2016, or 2017.

The distribution of samples analysed, non-compliant samples and non-compliant results in wild game are presented in Table 38. Of the 1,781 samples analysed for wild game, 93 (5.22%) were non-compliant (93 non-compliant results). The non-compliant samples were reported by ten Member States.

Table 38: Number of targeted samples analysed, non-compliant samples and non-compliant results in wild game

Substance group[(a)]	Samples analysed[(b)]	% Samples analysed	Non-compliant samples[(c)]	% Non-compliant samples	Non-compliant results[(d)]
A	14	0.8	0	0	0
A1	NA	NA	NA	NA	NA
A2	1	0.1	0	0	0
A3	1	0.1	0	0	0
A4	NA	NA	NA	NA	NA
A5	3	0.2	0	0	0
A6	9	0.5	0	0	0
B	1,773	99.6	93	5.25	93
B1	15	0.8	0	0	0
B2	182	10.2	0	0	0
B2a	142	8	0	0	0
B2b	4	0.2	0	0	0
B2c	28	1.6	0	0	0
B2d	3	0.2	0	0	0
B2e	6	0.3	0	0	0
B2f	12	0.7	0	0	0
B3	1,615	90.7	93	5.76	93
B3a	117	6.6	4	3.42	4
B3b	29	1.6	0	0	0
B3c	1,562	87.7	89	5.70	89
B3d	NA	NA	NA	NA	NA
B3e	NA	NA	NA	NA	NA
B3f	36	2	0	0	0
Total	**1,781**	**100**	**93**	**5.22**	**93**

NA: not applicable.
(a): as detailed in Appendix E;
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

The vast majority of the non-compliant results (n = 89) were reported for metals (B3c) (31 for lead, five for mercury, 40 for cadmium and 13 for copper). The only other non-compliant samples (n = 4) were reported for organochlorine compounds (B3a) (for DDT), reported by one Member State.

3.13. Honey

The number of samples to be taken must be at least 10 per 300 tonnes of annual production for the first 3,000 tonnes, plus one sample for each additional 300 tonnes. In order to check the fulfilment of this requirement the same equations were applied as described in Section 3.10.

Where the rate between the total targeted samples reported and the number of samples to be collected for the reported production is equal to 1.0 or higher, Member States completely fulfilled the requirements for sampling frequency. Member States with a value below 1.0 did not.

In 2018, 3,645 targeted samples were collected for honey in the EU (Table 39). Production volume and number of targeted samples broken down by Member State are presented in Table 40. Bulgaria, Croatia, France, Latvia, Lithuania, the Netherlands, Portugal and Sweden did not achieve the minimum sampling frequency requirement in 2018.

Table 39: Production of honey and number of targeted samples over 2007–2018

Year	Production (t)	Targeted samples
2007 (EU 27)	188,945	5,850
2008 (EU 27)	158,694	5,257
2009 (EU 27)	162,213	4,826
2010 (EU 27)	191,501	4,720
2011 (EU 27)	215,141	4,684
2012 (EU 27)	215,101	4,820
2013 (EU 28)	205,466	4,612
2014 (EU 28)	200,808	4,294
2015 (EU 28)	193,347	4,203
2016 (MS 27[a])	222,048	3,545
2016 (EU 28)	*236,720*	
2017 (EU 28)	216,244	3,619
2018 (EU 28)	229,009	3,645

(a): data from France were not available for inclusion in the 2016 results report.

Table 40: Production volume and number of targeted samples collected for honey

Country	Production data (t)[(a)]	Number of samples 2018	Samples tested/ required
Austria	5,000	185	1.7
Belgium	1,500	516	10.3
Bulgaria	6,134	81	0.7
Croatia	3,470	92	0.9
Cyprus	515	49	2.9
Czechia	8,521	140	1.2
Denmark	1,500	54	1.1
Estonia	1,097	37	1.0
Finland	1,700	57	1.0
France	16,099	69	0.5
Germany	21,616	192	1.2
Greece	16,100	178	1.2
Hungary	27,205	173	1.0
Ireland	190	86	13.6
Italy	14,000	299	2.2
Latvia	1,585	46	0.9
Lithuania	3,412	51	0.5
Luxembourg	150	30	6.0
Malta	15	14	28.0
Netherlands	2,200	69	0.9
Poland	18,704	393	2.6
Portugal	14,246	102	0.7
Romania	9,501	131	1.1
Slovakia	4,212	171	1.6
Slovenia	1,298	63	1.5
Spain	30,454	189	1.0
Sweden	2,549	79	0.9
United Kingdom	3,271	99	1.0
Total (EU 28)	**216,244**	**3,645**	**NA**

NA: not applicable.
(a): The production data was used for the preparation of the 2018 Residue Control Plan and may pertain to the years 2016 or 2017.

The distribution of samples analysed, non-compliant samples and non-compliant results in honey are presented in Table 41. Of the 3,645 samples analysed for honey, 56 (1.54%) were non-compliant (68 non-compliant results). The non-compliant samples were reported by 10 Member States.

Table 41: Number of targeted samples analysed, non-compliant samples and non-compliant results in honey

Substance group[(a)]	Samples analysed[(b)]	% Samples analysed	Non-compliant samples[(c)]	% Non-compliant samples	Non-compliant results[(d)]
A	1,095	30	8	0.73	8
A1	8	0.2	0	0	0
A2	NA	NA	NA	NA	NA
A3	NA	NA	NA	NA	NA
A4	NA	NA	NA	NA	NA
A5	336	9.2	0	0	0
A6	751	20.6	8	1.07	8
B	3,395	93.1	48	1.41	60
B1	1,835	50.3	15	0.82	25
B2	1,253	34.4	0	0	0
B2a	434	11.9	0	0	0
B2b	126	3.5	0	0	0
B2c	1,005	27.6	2	0.20	2
B2d	16	0.4	0	0	0
B2e	1	0.03	0	0	0
B2f	804	22.1	0	0	0
B3	1,668	45.8	32	1.92	33
B3a	961	26.4	1	0.10	1
B3b	1,018	27.9	0	0	0
B3c	408	11.2	29	7.11	29
B3d	6	0.2	0	0	0
B3e	NA	NA	NA	NA	NA
B3f	799	21.9	3	0.38	3
Total	**3,645**	**100**	**56**	**1.54**	**68**

NA: not applicable.
(a): as detailed in Appendix E.
(b): number of samples analysed for one or more substances of the respective group;
(c): number of non-compliant samples for one or more substances in the respective group;
(d): number of non-compliant results; one sample can be non-compliant for more substances therefore the number of non-compliant results can be higher than the number of non-compliant samples of the same group.

For antibacterials (B1), 15 non-compliant samples (25 non-compliant results) were reported. Other non-compliant results were reported for the group A6[15], (AOZ (n = 1), chloramphenicol (n = 2) and metronidazole (n = 5)), for pyrethroids (B2c) (n = 2), for anthelmintics (B3a) (n=1), for chemical elements (B3c) (n = 29) (5 for lead and 24 for copper) and for 'other' (B3f) (n = 3).

More details on the specific substances identified and the number of non-compliant results reported by each Member State are given in Appendix A.

[15] For honey, sampling for Group A substances is not a requirement of Council Directive 96/23/EC and Commission Decision 97/474/EC.

3.14. Suspect, import and other samples

In addition to the targeted samples collected in conformity with the specification of the NRCP for 2018, Member States also reported results on samples collected through sampling strategies other than targeted. According to Directive 96/23/EC in case of infringements of maximum residue limits when animals or animal products are placed on the market, intensified checks on the animals and products from the farm and/or establishment in question must be carried out by the competent authorities. Also, in the event of possession or presence of prohibited substances at any point during manufacture, storage, distribution or sale through the food and feed production chain, or suspicion or evidence of illegal treatment or non-compliance with the withdrawal period for an authorised medicinal veterinary product the competent authorities have to apply special measures including repeated sampling in the farm or establishment concerned. Thus, these samples are not representative for the assessment of the residue situation in the Member States and therefore they are reported separately in the residue database as 'suspect samples', as part of the follow-up measure taken in case of infringements.

In 2018, 5,095 suspect samples were reported of which 220 (4.32%) were non-compliant. It is to note that the number of non-compliant results from suspect sampling reported by a Member State does not accurately reflect the residue situation in that Member State. The suspect samples are taken as follow-up of non-compliance of targeted samples or evidence of possession and use of prohibited substances. In addition, the sampling procedure applied in case of suspicion might be different among Member States. For example, in Belgium, at slaughterhouse each injection site must be sampled together with a sample of muscle which are then analysed by a multi-residue method. This approach results in a higher probability that a suspect sample is found non-compliant for more than one substance. An overview on the number of suspect samples analysed for the different animal species/product categories and the frequency of non-compliant samples is presented in Table 42. Further details on the substances identified and Member States which reported non-compliant results are given in Appendix B.

Apart from the data submitted in accordance to NRCPs, Member States reported a certain amount of results on samples checked at import (n = 3,022). As the control of samples at import is more linked to the third country monitoring than to residue monitoring in the EU, Member States report those results to the EC using the TRACES and RASFF tools. Therefore, those data are of limited value and are not representative of the overall situation of residue control at import. An overview on the number of import samples analysed for the different animal species/product categories and the frequency of non-compliant samples is presented in Table 42. Further details on the substances identified and Member States which reported non-compliant results are given in Appendix C.

In total, 295,184 samples were collected in the framework of other monitoring programmes developed under the national legislation. An overview on the number of 'other' samples analysed for the different animal species/product categories and the frequency of non-compliant samples is presented in Table 42. Further details on the substances identified and Member States which reported non-compliant results are given in Appendix D.

Table 42: Number of suspect, import and other samples analysed and frequency of non-compliant samples and in all species and product categories

Group	Suspect samples total	Suspect samples non-compliant	Import samples total	Import samples non-compliant	Other samples total	Other samples non-compliant
Aquaculture	473	96	1,595	10	212	1
Bovines	3,024	53	323	1	23,368	31
Eggs	128	22	36	0	37	0
Farmed game	1	0	28	0	3,735	8
Honey	88	12	307	0	212	2
Horses	16	1	70	0	306	0
Milk	259	16	7	1	263,486	67
Pigs	709	8	26	0	1,208	5
Poultry	190	5	425	0	90	2
Rabbits	30	0	54	0	3	0
Sheep/goats	174	7	129	0	2,175	9
Wild game	3	0	22	0	352	1
Total	**5,095**	**220**	**3,022**	**12**	**295,184**	**126**
Percentage non-compliant samples		**4.32**		**0.40**		**0.04**

4. Conclusions

- In 2018, 28 European Union (EU) Member States reported in the framework of the residue monitoring the results for 657,818 samples. A total of 354,517 targeted samples and 5,095 suspect samples were reported under Council Directive 96/23/EC. Additionally, 295,184 samples collected in the framework of other programmes developed under the national legislation and 3,022 samples checked at import, were reported.
- The majority of Member States fulfilled the requirements for sampling frequency laid down in Council Directive 96/23/EC and in Commission Decision 97/747/EC.
- Overall, there were 1,059 or 0.30% of non-compliant samples out of the 354,517 targeted samples in 2018.
- No non-compliant samples were reported for stilbenes and derivatives (A1).
- For antithyroid agents (A2), there were 0.51% non-compliant samples, all for thiouracil and 6-methyl-2-thiouracil, and possibly due to feeding diets rich in cruciferous plants.
- In the group of steroids (A3), non-compliant samples (all for anabolic steroids) were found in bovines (0.16%), horses (0.45%), pigs (0.73%), poultry (0.07%) and sheep and goats (3.03%).
- For corticosteroids, non-compliant results for authorised substances were reported under 'other pharmacologically active substances' (B2f), all reported for bovines (0.15%).
- In the group of resorcylic acid lactones (A4), 0.15% of the samples were non-compliant for zearalanone and derivatives; the non-compliant samples were found in bovines (0.21%), pigs (0.02%), sheep and goats (1.29%), rabbit (2.63%) and horses (1.09%).
- For beta-agonists (A5), there were 0.01% non-compliant samples in total, reported for bovines and poultry.
- Prohibited substances (A6) were found in 0.03% of samples. Substances identified were chloramphenicol (n = 19), nitroimidazoles (n = 6) and nitrofurans (n = 3).
- For antibacterials (B1), 0.17% of the samples analysed under the Directive 96/23/EC monitoring were non-compliant. The highest frequency of non-compliant samples for antibacterials was found in honey (0.82%).
- In group B2 (other veterinary drugs), the highest proportion of non-compliant samples was found for non-steroidal anti-inflammatory drugs (NSAIDs) (B2e) (0.19%). For NSAIDs, the non-compliant samples were reported across the different species as follows: bovines (0.25%), poultry (0.11%), horses (1.03%), pigs (0.08%) and milk (0.25%).
- Instances of non-compliance for anthelmintics (B2a) were reported in bovines (0.13%), sheep and goats (0.67%), pigs (0.08%) and milk (0.09%).
- For anticoccidials (B2b), 0.16% of the samples analysed were non-compliant and were reported across the different species as follows: bovines (0.03%), pigs (0.01%), poultry (0.17%) and eggs (0.65%).
- Since 2009, an important decrease has been observed in the frequency of non-compliant samples for anticoccidials (B2b) in poultry. This decrease is most likely the result of the awareness and the measures that followed the implementation of the Commission Directive 2009/8/EC setting up maximum levels of unavoidable carry-over of coccidiostats in non-target feed.
- For pyrethroids (B2c) overall, 0.02% of the samples analysed were non-compliant and reported for honey only.
- No non-compliant samples were reported for sedatives (B2d).
- Non-compliant samples were reported for 'other pharmacologically active substances' (B2f), all in bovines (0.15%).

- In the group B3 (other substances and environmental contaminants), the chemical elements (B3c) had the highest overall percentage of non-compliant samples (3.24%), with cadmium, lead, mercury and copper being most frequently identified.
- Instances of non-compliance for organochlorine compounds (B3a) and organophosphorus compounds (B3b) were 0.16% and 0.03%, respectively.
- For mycotoxins (B3d), there were non-compliant samples reported for bovines (0.11%), pigs (0.27%), horses (1.19%), rabbits (4.76%) and poultry (0.07%); with those identified being zearalenone and aflatoxin B_1.
- For dyes (B3e), non-compliant samples were reported for aquaculture (1.24%). The substances found were leuco-malachite green, crystal violet, sum of brilliant green and brilliant green-leuco and sum of malachite green and leuco-malachite green.
- For 'other substances' (B3f), non-compliant samples were reported for honey (0.38%), pigs (0.13%) and eggs (0.33%). The substances identified were fipronil, difenoconazole, flonicamid.
- Overall, the percentage of non-compliant samples in 2018 (0.30%) was comparable to the previous 10 years (0.25%-0.37%), although slightly lower compared to 2017 (0.35%).
- Compared to the results from 2017, in 2018 the frequency of non-compliant results was slightly increased for antithyroid agents (A2), steroids (A3), and 'others' (B3f).
- Slight decreases were noted for antibacterials (B1), anthelmintics (B2a), NSAIDs (B2e), 'other pharmacologically active substances' (B2f), organochlorine compounds (B3a), chemical elements (B3c), mycotoxins (B3d) and dyes (B3e). For the other substance groups, there were no notable variations.

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Abbreviations

AMOZ	5-methylmorpholino-3-amino-2-oxazolidone
AOZ	3-amino-2-oxazolidone
DG SANTÉ	Directorate General for Health and Food Safety
EC	European Commission
EFSA	European Food Safety Authority
MRL	Maximum residue limit
MRPL	Minimum Required Performance Limit
NRCPs	National Residue Control Plans
NSAIDs	Non-steroidal anti-inflammatory drugs
RASFF	Rapid Alert System for Food and Feed
SEM	Semicarbazide
TRACES	Trade Control and Expert System

Appendix A – List of non-compliant results: targeted sampling

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
Aquaculture	A6	Chloramphenicol	Czechia	19	1	5.3
			Spain	108	1	0.9
		Sub-total for A6	**2**		**2**	
	B1	Flumequine	Croatia	63	1	1.6
		Oxytetracycline	France	37	1	2.7
		Trimethoprim	France	37	1	2.7
		Sub-total for B1	**2**		**3**	
	B3a	TEQ dioxins (PCDD and PCDF) UB	Portugal	17	2	11.8
		Sub-total for B3a	**1**		**2**	
	B3c	Total mercury	Spain	47	1	2.1
		Sub-total for B3c	**1**		**1**	
	B3e	Cristal Violet	Slovakia	84	1	1.2
		Leucomalachite Green	Czechia	71	2	2.8
			Germany	231	1	0.4
			Lithuania	2	2	100
			Slovakia	84	3	3.6
		Sum of Brilliant Green and Brilliant Green-Leuco	Germany	206	1	0.5
		Sum of malachite green and leucomalachite green	Austria	4	1	25
			Poland	119	10	8.4
		Sub-total for B3e	**6**		**21**	
		Total for Aquaculture	**10**		**29**	
Bovines	A2	6-Methyl-2-thiouracil	Ireland	243	2	0.8
		Thiouracil	France	330	1	0.3
			Ireland	243	14	5.8
			Lithuania	31	2	6.5
			Netherlands	411	15	3.6
			Spain	395	3	0.8
		Sub-total for A2	**5**		**37**	
	A3	17-alpha-Boldenone Glucuronide	Netherlands	1,285	3	0.2
		Boldenone	United Kingdom	2,423	1	0
		Boldenone-Alpha	Poland	245	1	0.4
			Spain	122	2	1.6
			United Kingdom	2,423	7	0.3
		Epinandrolone (19-Norepitestosterone)	Poland	168	1	0.6

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
			United Kingdom	2,242	17	0.8
		Estradiol-17-Alpha	United Kingdom	610	1	0.2
		Nandrolone	United Kingdom	2,242	9	0.4
		Testosterone-17-Alpha	Lithuania	2	2	100
		Testosterone-17-Beta	Slovakia	6	1	16.7
			United Kingdom	1,160	1	0.1
		Sub-total for A3	**6**		**46**	
	A4	Alpha-Zearalanol (Zeranol)	France	1,545	2	0.1
			United Kingdom	523	15	2.9
		Beta Zearalanol (Taleranol)	France	1,545	2	0.1
			United Kingdom	952	20	2.1
		Sub-total for A4	**2**		**39**	
	A5	Salbutamol (albuterol)	Italy	2,573	1	0
		Sotalol hydrochloride	Ireland	597	1	0.2
		Terbutaline	Germany	1,281	1	0.1
		Tulobuterol	Germany	965	1	0.1
		Sub-total for A5	**3**		**4**	
	A6	Chloramphenicol	Poland	749	2	0.3
			Slovakia	26	1	3.8
			Spain	680	4	0.6
		Sub-total for A6	**3**		**7**	
	B1	Amoxycillin	Poland	800	1	0.1
		Antibacterials	France	1	1	100
		Benzylpenicillin (Penicillin G)	Belgium	550	1	0.2
			Czechia	182	1	0.5
			Spain	772	1	0.1
		Chlortetracyclin	Czechia	182	1	0.5
		Danofloxacin	Italy	1,149	1	0.1
		Dihydrostreptomycin	Czechia	70	2	2.9
			Poland	1,515	5	0.3
			Spain	415	1	0.2
			United Kingdom	519	1	0.2
		Doxycycline	Belgium	550	1	0.2
			Netherlands	2,116	1	0
		Enrofloxacin	Spain	1,066	1	0.1
		Epi-Oxytetracycline	Spain	737	1	0.1
		Florfenicol	United Kingdom	98	1	1
		Gamithromycin	United Kingdom	1,405	1	0.1

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
		Gentamicin	Netherlands	2,116	1	0
			Romania	84	1	1.2
		Lincomycin	Czechia	70	1	1.4
		Neomycin	Czechia	70	1	1.4
			Poland	800	1	0.1
		Oxytetracycline	Cyprus	12	1	8.3
			France	1,392	5	0.4
			Spain	1,052	2	0.2
			United Kingdom	1,405	2	0.1
		Paromomycin	Poland	800	1	0.1
		Sulfadimethoxine	Italy	1,699	1	0.1
		Sulfadimidine	France	1,047	2	0.2
			Italy	1,650	1	0.1
		Sulfamethoxypyridazine	France	1,051	1	0.1
		Sum of chlortetracyclin and its 4-epimer	Italy	87	1	1.1
		Sum of enrofloxacin and ciprofloxacin	Austria	1	1	100
			Italy	1,212	3	0.2
		Sum of florfenicol and its metabolites measured as florfenicol-amine	France	143	3	2.1
		Sum of Oxytetracycline and its 4-epimer	France	17	10	58.8
			Germany	2,265	1	0
			Poland	459	3	0.7
		Sum of spiramycin and neospiramycin	France	2	1	50
		Sum of tetracycline and its 4-epimer	Austria	975	1	0.1
			Germany	2,265	1	0
			Italy	1	1	100
			Poland	459	2	0.4
		Tetracycline	Italy	1,063	1	0.1
		Tildipirosin	France	1,049	2	0.2
		Tilmicosin	Belgium	550	1	0.2
			Poland	799	1	0.1
		Tulathromycin	Czechia	179	1	0.6
			Germany	2,551	2	0.1
		Sub-total for B1	**12**		**79**	
	B2a	Closantel	Ireland	481	1	0.2
			United Kingdom	517	3	0.6
		Ivermectin	United Kingdom	305	2	0.7
		Nitroxinil	Ireland	481	1	0.2
		Triclabendazolsulfon	France	189	1	0.5

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
		Sub-total for B2a	**3**		**8**	
	B2b	Halofuginone	United Kingdom	17	1	5.9
		Sub-total for B2b	**1**		**1**	
	B2e	Acetaminophen (Paracetamol)	Netherlands	182	1	0.5
		Antipyrin-4-Methylamino	Germany	331	1	0.3
			Poland	15	1	6.7
		Diclofen (Diclofenac)	Germany	350	2	0.6
			Netherlands	226	1	0.4
		Flunixin	France	833	1	0.1
		Ibuprofen	United Kingdom	525	1	0.2
		Meloxicam	France	833	1	0.1
			Germany	728	2	0.3
		Phenylbutazone	Germany	2,064	1	0
		Salicylic acid	Netherlands	226	3	1.3
		Sub-total for B2e	**5**		**15**	
	B2f	Dexamethasone	Croatia	34	1	2.9
			France	361	1	0.3
			Germany	1,335	7	0.5
			Italy	2,512	1	0
			Netherlands	1,445	1	0.1
			Poland	95	4	4.2
			Spain	726	3	0.4
		Prednisone	Italy	210	1	0.5
		Sub-total for B2f	**7**		**19**	
	B3c	Cadmium (Cd)	Croatia	20	1	5
			Czechia	163	3	1.8
			Germany	288	8	2.8
			Latvia	9	2	22.2
			Netherlands	196	12	6.1
			Spain	191	7	3.7
		Copper (Cu)	Germany	288	58	20.1
		Lead (Pb)	Germany	286	1	0.3
			Spain	188	1	0.5
			United Kingdom	89	1	1.1
		Total copper	Denmark	28	14	50
		Total mercury	Germany	287	3	1
		Sub-total for B3c	**8**		**111**	
	B3d	Zearalenone	Spain	43	3	7
		Sub-total for B3d	**1**		**3**	
		Total for Bovines	**18**		**369**	
Eggs	A6	Chloramphenicol	Latvia	111	1	0.9
		Sub-total for A6	**1**		**1**	

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
	B1	Doxycycline	Italy	40	1	2.5
			Spain	242	1	0.4
		Enrofloxacin	Croatia	150	3	2
			Poland	259	1	0.4
		Oxolinic Acid	Spain	111	1	0.9
		Sulfadiazine	Spain	306	2	0.7
		Sulfadimethoxine	France	22	1	4.5
		Tilmicosin	Italy	27	1	3.7
		Trimethoprim	Spain	222	2	0.9
		Sub-total for B1	**5**		**13**	
	B2b	Decoquinate	Latvia	163	1	0.6
		Diclazuril	Croatia	181	2	1.1
		Lasalocid	Germany	706	1	0.1
			Malta	66	2	3
			Poland	219	2	0.9
			United Kingdom	615	4	0.7
		Lasalocid-Sodium	Lithuania	139	1	0.7
		Maduramicin	Slovenia	183	1	0.5
		Monensin	Croatia	180	2	1.1
		Narasin	Malta	67	3	4.5
			Slovenia	183	1	0.5
			Spain	244	1	0.4
		Robenidine	Portugal	131	2	1.5
		Salinomycin	Austria	205	1	0.5
			Denmark	143	1	0.7
			France	122	1	0.8
			Malta	66	2	3
			United Kingdom	615	1	0.2
		Salinomycin sodium	Cyprus	56	1	1.8
		Toltrazurilsulfon	Latvia	163	5	3.1
		Sub-total for B2b	**14**		**35**	
	B3a	WHO-PCDD/F-TEQ	Germany	88	1	1.1
		Sub-total for B3a	**1**		**1**	
	B3f	Fipronil (sum Fipronil and sulfone metabolite (MB46136) expressed as Fipronil)	Germany	447	2	0.4
			Italy	200	1	0.5
			Romania	80	3	3.8
		Sub-total for B3f	**3**		**6**	
		Total for Eggs	**16**		**56**	
Game (Farmed Game)	B3a	Hexachlorobenzene	Sweden	10	7	70
		Sum of 6 PCB indicators	Poland	29	1	3.4

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
		Sub-total for B3a	**2**		**8**	
	B3c	Cadmium (Cd)	Finland	29	14	48.3
			Poland	145	7	4.8
			Spain	4	2	50
		Copper (Cu)	Germany	30	1	3.3
		Inorganic mercury	Ireland	114	1	0.9
		Lead (Pb)	Ireland	114	3	2.6
			Poland	142	2	1.4
			Portugal	58	1	1.7
		Total mercury	Germany	30	1	3.3
		Sub-total for B3c	**6**		**32**	
		Total for Game (Farmed Game)	**7**		**40**	
Game (Wild Game)	B3a	DDT (sum of p,p'-DDT, o,p'-DDT, p-p'-DDE and p,p'-TDE (DDD) expressed as DDT)	Germany	68	4	5.9
		Sub-total for B3a	**1**		**4**	
	B3c	Cadmium (Cd)	Latvia	102	40	39.2
		Inorganic mercury	Netherlands	101	2	2
		Lead (Pb)	Austria	171	6	3.5
			Czechia	100	8	8
			Latvia	102	6	5.9
			Poland	173	1	0.6
			Slovenia	103	5	4.9
			Sweden	103	4	3.9
			United Kingdom	100	1	1
		Total copper	Denmark	13	13	100
		Total mercury	Germany	78	3	3.8
		Sub-total for B3c	**10**		**89**	
		Total for Game (Wild Game)	**10**		**93**	
Honey	A6	AOZ (3-amino-2-oxazolidone)	Poland	41	1	2.4
		Chloramphenicol	Poland	19	2	10.5
		Metronidazole	Poland	34	5	14.7
		Sub-total for A6	**1**		**8**	
	B1	Dihydrostreptomycin	Austria	133	1	0.8
		Oxytetracycline	Greece	68	1	1.5
		Streptomycin	Romania	33	1	3
		Sulfacetamide	Poland	217	5	2.3
		Sulfachlorpyrazine	Poland	52	3	5.8
		Sulfadiazine	Greece	68	1	1.5
		Sulfadimidine	Greece	68	1	1.5
		Sulfamethazin (sulfadimidin)	Croatia	49	1	2

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
			Poland	216	5	2.3
		Sulfathiazole	Poland	216	5	2.3
		Sum of Oxytetracycline and its 4-epimer	France	1	1	100
		Sub-total for B1	**6**		**25**	
	B2c	Propamocarb	Belgium	156	2	1.3
		Sub-total for B2c	**1**		**2**	
	B3a	Captan/Folpet (sum)	Belgium	205	1	0.5
		Sub-total for B3a	**1**		**1**	
	B3c	Copper (Cu)	Germany	30	16	53.3
		Lead (Pb)	Germany	30	1	3.3
			Greece	35	2	5.7
			Ireland	15	1	6.7
			Poland	33	1	3
		Total copper	Denmark	8	8	100
		Sub-total for B3c	**5**		**29**	
	B3f	Difenoconazole	Belgium	205	1	0.5
		Flonicamid (sum of flonicamid, TNFG and TNFA expressed as flonicamid)	Austria	62	1	1.6
		Fluazifop-P	Belgium	1	1	100
		Sub-total for B3f	**2**		**3**	
		Total for Honey	**10**		**68**	
Horses	A3	Norethandrolon	Netherlands	3	1	33.3
		Sub-total for A3	**1**		**1**	
	A4	Alpha-Zearalanol (Zeranol)	Spain	11	1	9.1
		Beta Zearalanol (Taleranol)	Spain	11	1	9.1
		Zearalenol alpha	Spain	1	1	100
		Sub-total for A4	**1**		**3**	
	B2e	Flufenamic-Acid	Belgium	45	1	2.2
		Flunixin	Romania	52	1	1.9
		Oxyphenbutazone Monohydrate	Romania	52	1	1.9
		Phenylbutazone	Germany	53	3	5.7
			Romania	52	1	1.9
		Sub-total for B2e	**3**		**7**	
	B3c	Cadmium (Cd)	Germany	6	3	50
			Romania	8	1	12.5
			Slovenia	6	3	50
			Spain	46	6	13
			United Kingdom	1	1	100
		Lead (Pb)	Spain	46	3	6.5
		Sub-total for B3c	**5**		**17**	

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
	B3d	Zearalenone	Spain	1	1	100
		Sub-total for B3d	**1**		**1**	
		Total for Horses	**7**		**29**	
Milk	A6	Chloramphenicol	Poland	198	1	0.5
			Spain	367	1	0.3
		Sub-total for A6	**2**		**2**	
	B1	Aminosidin (Paromycin, Paromomycin)	Cyprus	83	1	1.2
		Amoxycillin	Poland	1,507	1	0.1
		Cloxacillin	Italy	333	1	0.3
		Oxytetracycline	Greece	150	1	0.7
		Sub-total for B1	**4**		**4**	
	B2a	Closantel	United Kingdom	384	1	0.3
		Ivermectin	Ireland	361	1	0.3
			United Kingdom	287	2	0.7
		Sum of albendazole sulphoxide, albendazole sulphone, and albendazole 2-amino sulphone, expressed as albendazole	Greece	63	1	1.6
			Ireland	361	1	0.3
		Sub-total for B2a	**3**		**6**	
	B2e	Diclofen (Diclofenac)	Austria	32	1	3.1
			Estonia	9	1	11.1
			Germany	1,519	3	0.2
			Ireland	83	1	1.2
			Luxembourg	175	1	0.6
			Slovenia	203	1	0.5
		Salicylic acid	Denmark	144	2	1.4
			Germany	1	1	100
			Netherlands	117	1	0.9
		Sub-total for B2e	**8**		**12**	
	B3c	Lead (Pb)	Bulgaria	9	1	11.1
			Germany	72	2	2.8
		Sub-total for B3c	**2**		**3**	
		Total for Milk	**15**		**27**	
Pigs	A2	Thiouracil	Estonia	9	1	11.1
			Lithuania	15	1	6.7
		Sub-total for A2	**2**		**2**	
	A3	Androstane-5-Alpha-3-Alpha,17-Beta-Diol	Czechia	81	3	3.7
		Boldenone	Cyprus	7	2	28.6
			Poland	196	1	0.5
			Spain	27	3	11.1
		Boldenone-Alpha	Czechia	81	2	2.5

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
			Poland	125	1	0.8
			Spain	27	1	3.7
		Estradiol-17-Beta	Spain	134	54	40.3
		Nandrolone	Cyprus	17	3	17.6
			Netherlands	647	2	0.3
			Poland	636	7	1.1
			Spain	154	57	37
		Normethandrolone	France	89	1	1.1
		Sub-total for A3	**6**		**137**	
	A4	Zearalenol alpha	Spain	47	1	2.1
		Sub-total for A4	**1**		**1**	
	A6	Chloramphenicol	Italy	653	1	0.2
		Sub-total for A6	**1**		**1**	
	B1	Amoxycillin	Germany	8,666	1	0
			Poland	924	2	0.2
		Benzylpenicillin (Penicillin G)	Austria	1,053	1	0.1
			Czechia	375	1	0.3
			France	1,139	1	0.1
		Danofloxacin	Spain	2,271	1	0
		Dihydrostreptomycin	Austria	1,053	1	0.1
			Czechia	156	1	0.6
			Denmark	170	1	0.6
			France	1,167	1	0.1
			Poland	3,440	1	0
		Doxycycline	Belgium	1,388	1	0.1
			Denmark	2,866	1	0
			France	1,167	1	0.1
			Greece	119	2	1.7
			Italy	1,047	1	0.1
			Poland	3,444	5	0.1
			Portugal	622	2	0.3
		Enrofloxacin	Spain	3,701	1	0
		Erythromycin	Poland	3,438	1	0
		Oxytetracycline	Czechia	375	1	0.3
			Portugal	622	1	0.2
		Sarafloxacin	Spain	1,684	1	0.1
		Sulfadiazine	Portugal	622	1	0.2
			United Kingdom	1,363	1	0.1
		Sulfadimethoxine	Italy	1,211	5	0.4
		Sulfadimidine	Germany	9,105	1	0
		Sulfonamides	Croatia	1	1	100
		Sum of Oxytetracycline and its 4-epimer	Belgium	1,388	2	0.1
			Germany	7,197	1	0

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
			Italy	1,040	1	0.1
			Poland	573	1	0.2
		Sum of tetracycline and its 4-epimer	Netherlands	10	1	10
		Tilmicosin	Cyprus	73	1	1.4
			Romania	231	1	0.4
		Sub-total for B1	**16**		**47**	
	B2a	Febantel	Belgium	199	1	0.5
		Fenbendazole	Belgium	199	1	0.5
			Germany	1	1	100
		Flubendazole + (2-amino-1H-benzimidazol-5-yl) (4-fluorphenyl)-methanon	Germany	372	1	0.3
			Portugal	57	1	1.8
		Levamisole	France	64	1	1.6
			Netherlands	242	1	0.4
		Sum of extractable residues which may be oxidised to oxfendazole sulphone	Belgium	199	1	0.5
			Germany	308	1	0.3
			Poland	258	1	0.4
		Sub-total for B2a	**6**		**10**	
	B2b	Toltrazurilsulfon	Netherlands	46	1	2.2
		Sub-total for B2b	**1**		**1**	
	B2e	Antipyrin-4-Methylamino Diclofen (Diclofenac)	Germany	694	1	0.1
			Austria	45	2	4.4
			Germany	479	2	0.4
		Sub-total for B2e	**2**		**5**	
	B3b	Pirimiphos-methyl	Spain	711	2	0.3
		Sub-total for B3b	**1**		**2**	
	B3c	Cadmium (Cd)	Germany	1,329	3	0.2
			Spain	577	2	0.3
		Copper (Cu)	Germany	1,329	64	4.8
		Lead (Pb)	Spain	573	1	0.2
		Total mercury	Germany	1,310	32	2.4
		Sub-total for B3c	**2**		**102**	
	B3d	Zearalenone	Spain	54	8	14.8
		Sub-total for B3d	**1**		**8**	
	B3f	Fipronil (sum Fipronil and sulfone metabolite (MB46136) expressed as Fipronil)	Spain	493	2	0.4
		Sub-total for B3f	**1**		**2**	
		Total for Pigs	**18**		**318**	
Poultry	A3	Normethandrolone	France	194	4	2.1

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
		Sub-total for A3	**1**		**4**	
	A5	Clenbuterol	Spain	704	1	0.1
		Sub-total for A5	**1**		**1**	
	A6	AMOZ (5-methylmorpholino-3-amino-2-oxazolidone)	Netherlands	640	1	0.2
		Chloramphenicol	France	628	1	0.2
			Germany	2,571	1	0
			United Kingdom	758	2	0.3
		Metronidazole	Germany	3,207	1	0
		Sub-total for A6	**4**		**6**	
	B1	Amoxycillin	Netherlands	1,896	1	0.1
		Doxycycline	Germany	2,153	1	0
			Netherlands	1,896	3	0.2
			Poland	2,601	13	0.5
		Enrofloxacin	Greece	133	1	0.8
		Flumequine	Netherlands	1,896	1	0.1
		Oxytetracycline	Portugal	307	1	0.3
		Sulfonamides	Netherlands	1,896	1	0.1
		Sum of enrofloxacin and ciprofloxacin	Netherlands	3	1	33.3
		Trimethoprim	Netherlands	4	1	25
		Sub-total for B1	**5**		**24**	
	B2b	Chlopidol	Spain	322	1	0.3
		Lasalocid	Czechia	147	1	0.7
			Italy	615	1	0.2
			Portugal	123	1	0.8
			United Kingdom	1,490	3	0.2
		Maduramicin	Cyprus	17	1	5.9
			Greece	43	1	2.3
			Italy	396	1	0.3
		Maduramicin ammonium	Croatia	36	1	2.8
		Monensin	Czechia	147	1	0.7
			Portugal	123	3	2.4
			United Kingdom	1,490	1	0.1
		Narasin	Czechia	147	3	2
		Nicarbazin	Italy	643	1	0.2
		Salinomycin	Czechia	147	2	1.4
			Portugal	123	1	0.8
		Toltrazurilsulfon	Cyprus	17	1	5.9
		Sub-total for B2b	**8**		**24**	
	B2e	Antipyrin-4-Methylamino	Austria	24	1	4.2
		Diclofen (Diclofenac)	Poland	28	1	3.6

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
		Sub-total for B2e	**2**		**2**	
	B3a	Lindane (Gamma-isomer of hexachlorocyclohexane (HCH))	Spain	354	1	0.3
		Sum of 6 PCB indicators	Germany	128	2	1.6
		Sub-total for B3a	**2**		**3**	
	B3c	Copper (Cu)	Germany	152	2	1.3
		Total copper	Denmark	38	3	7.9
		Sub-total for B3c	**2**		**5**	
	B3d	Aflatoxin B1	Italy	44	1	2.3
		Sub-total for B3d	**1**		**1**	
		Total for Poultry	**14**		**70**	
Rabbits	A2	Thiouracil	Lithuania	1	1	100
		Sub-total for A2	**1**		**1**	
	A4	Zearalenol alpha	Spain	2	1	50
		Sub-total for A4	**1**		**1**	
	B1	Enrofloxacin	Spain	71	1	1.4
		Sulfadimethoxine	Italy	79	1	1.3
		Sub-total for B1	**2**		**2**	
	B3c	Cadmium (Cd)	Spain	17	1	5.9
		Copper (Cu)	Germany	4	2	50
		Sub-total for B3c	**2**		**3**	
	B3d	Zearalenone	Spain	2	1	50
		Sub-total for B3d	**1**		**1**	
		Total for Rabbits	**4**		**8**	
Sheep/goats	A2	Thiouracil	Ireland	16	5	31.2
			Lithuania	1	1	100
		Sub-total for A2	**2**		6	
	A3	Boldenone-Alpha	United Kingdom	497	24	4.8
		Epinandrolone (19-Norepitestosterone)	France	40	4	10
			United Kingdom	497	1	0.2
		Nandrolone	United Kingdom	497	1	0.2
		Norethandrolon	Netherlands	8	1	12.5
		Sub-total for A3	**3**		**31**	
	A4	Alpha-Zearalanol (Zeranol)	United Kingdom	68	4	5.9
		Beta Zearalanol (Taleranol)	United Kingdom	68	4	5.9
		Sub-total for A4	**1**		**8**	
	A6	SEM (semicarbazide)	United Kingdom	241	1	0.4
		Sub-total for A6	**1**		**1**	
	B1	Ampicillin	Netherlands	43	1	2.3

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
		Ciprofloxacin	Portugal	124	1	0.8
		Dihydrostreptomycin	France	253	1	0.4
			Germany	38	1	2.6
			Greece	55	1	1.8
			Spain	31	1	3.2
		Enrofloxacin	Portugal	124	2	1.6
		Oxytetracycline	United Kingdom	2,061	1	0
		Sulfadiazine	Cyprus	19	1	5.3
			Portugal	124	4	3.2
			Spain	498	3	0.6
		Sulfadimethoxine	Portugal	124	1	0.8
		Sum of Oxytetracycline and its 4-epimer	Italy	70	1	1.4
		Tilmicosin	Belgium	45	1	2.2
		Tulathromycin	France	50	1	2
		Sub-total for B1	**10**		**21**	
	B2a	Closantel	France	172	1	0.6
			Ireland	309	2	0.6
			United Kingdom	1,475	13	0.9
		Ketotriclabendazole	Ireland	309	1	0.3
		Levamisole	United Kingdom	1,475	1	0.1
		Moxidectin	United Kingdom	454	1	0.2
		Nitroxinil	United Kingdom	1,475	1	0.1
		Sum of extractable residues which may be oxidised to ketotriclabendazole	Ireland	309	1	0.3
			United Kingdom	1,350	1	0.1
		Triclabendazole	Ireland	309	1	0.3
			United Kingdom	1,475	1	0.1
		Triclabendazolsulfon	Ireland	309	1	0.3
		Sub-total for B2a	**3**		**25**	
	B3a	Hexachlorocyclohexane (HCH), beta-isomer	Romania	16	1	6.2
			Spain	72	2	2.8
		Sum of 6 PCB indicators	Austria	2	1	50
		Sub-total for B3a	**3**		**4**	
	B3b	Diazinon	Poland	3	1	33.3
		Sub-total for B3b	**1**		**1**	
	B3c	Cadmium (Cd)	Czechia	12	3	25
			Germany	36	1	2.8
			United Kingdom	55	2	3.6

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
		Copper (Cu)	Germany	36	12	33.3
		Lead (Pb)	United Kingdom	55	3	5.5
		Total copper	Denmark	6	1	16.7
		Sub-total for B3c	**4**		**22**	
		Total for Sheep/goats	**17**		**119**	

(a): The number of samples analysed for the individual substances is presented only if there was at least one non-compliant sample for the substance in question.

Appendix B – List of non-compliant results: suspect sampling

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
Aquaculture	B1	Florfenicol	Germany	214	7	3.3
		Sum of enrofloxacin and ciprofloxacin	Germany	220	35	15.9
		Sum of Oxytetracycline and its 4-epimer	Germany	214	1	0.5
		Trimethoprim	Germany	214	7	3.3
		Sub-total for B1	**1**		**50**	
	B3e	Leucomalachite Green	Germany	269	34	12.6
			Lithuania	5	4	80
			Spain	2	2	100
		Malachite Green	Lithuania	5	2	40
			Spain	2	2	100
		Sum of cristal violet and leucocristal violet	Austria	2	2	100
		Sum of malachite green and leucomalachite green	Austria	5	1	20
			Poland	17	3	17.6
		Sub-total for B3e	**5**		**50**	
		Total for Aquaculture	**5**		**100**	
Bovines	A2	Thiouracil	Lithuania	5	4	80
		Sub-total for A2	**1**		**4**	
	B1	Amoxycillin	Ireland	1,532	1	0.1
			Italy	227	2	0.9
			Latvia	11	1	9.1
		Benzylpenicillin (Penicillin G)	Austria	459	1	0.2
			Ireland	7	1	14.3
			Latvia	11	1	9.1
		Doxycycline	Italy	245	4	1.6
		Florfenicol	Italy	30	1	3.3
		Gamithromycin	Ireland	4	1	25
		Marbofloxacin	Ireland	1,528	2	0.1
			Italy	239	4	1.7
		Oxytetracycline	United Kingdom	2	1	50
		Sulfadimidine	Italy	227	3	1.3
		Sulfamerazine	Italy	227	1	0.4
		Sulfamonomethoxine	Italy	227	1	0.4
		Sulfapyridin	Italy	32	1	3.1
		Sulfathiazole	Italy	227	1	0.4
		Sum of chlortetracyclin and its 4-epimer	Italy	5	1	20
		Sum of enrofloxacin and ciprofloxacin	Austria	2	1	50
			Italy	245	6	2.4
		Sum of Oxytetracycline	Austria	459	1	0.2

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
		and its 4-epimer				
			Ireland	1,531	2	0.1
			Italy	245	5	2
		Thiamphenicol	Italy	31	1	3.2
		Tildipirosin	Ireland	4	1	25
		Tylon (Tylosin, Tylosin A)	Italy	234	1	0.4
		Sub-total for B1	**5**		**46**	
	B2e	Diclofen (Diclofenac)	Germany	8	2	25
		Sub-total for B2e	**1**		**2**	
	B2f	Dexamethasone	Italy	293	5	1.7
			Spain	134	1	0.7
		Sub-total for B2f	**2**		**6**	
	B3c	Copper (Cu)	Germany	5	4	80
		Sub-total for B3c	**1**		**4**	
	B3d	Aflatoxin B1	Italy	7	2	28.6
		Sub-total for B3d	**1**		**2**	
		Total for Bovines	**8**		**64**	
Eggs	B1	Enrofloxacin	Poland	2	1	50
		Sulfadimethoxine	France	1	1	100
		Sub-total for B1	**2**		**2**	
	B2b	Diclazuril	Austria	6	1	16.7
		Lasalocid	Poland	14	2	14.3
		Narasin	Spain	16	16	100
		Salinomycin	Austria	6	1	16.7
		Sub-total for B2b	**3**		**20**	
	B3f	Fipronil (sum Fipronil and sulfone metabolite (MB46136) expressed as Fipronil)	Italy	14	1	7.1
		Sub-total for B3f	1		1	
		Total for Eggs	**5**		**23**	
Honey	A6	Chloramphenicol	Poland	2	1	50
		Metronidazole	Poland	3	2	66.7
		Sub-total for A6	**1**		**3**	
	B1	Sulfacetamide	Poland	7	3	42.9
		Sulfamethazin (sulfadimidin)	Poland	7	3	42.9
		Sulfathiazole	Poland	7	3	42.9
		Sum of chlortetracyclin and its 4-epimer	Italy	1	1	100
		Sum of Oxytetracycline and its 4-epimer	Italy	11	1	9.1
		Tilmicosin	Italy	17	1	5.9
		Sub-total for B1	**2**		**12**	
	B2f	Amitraz (amitraz including the metabolites containing the 2,4 - dimethylaniline moiety	Poland	1	1	100

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
		expressed as amitraz)				
		Sub-total for B2f	**1**		**1**	
	B3c	Lead (Pb)	Germany	2	2	100
		Sub-total for B3c	**1**		**2**	
	B3f	Flonicamid (sum of flonicamid, TNFG and TNFA expressed as flonicamid)	Austria	2	1	50
		Sub-total for B3f	**1**		**1**	
		Total for Honey	**4**		**19**	
Horses	B1	Doxycycline	Spain	1	1	100
		Sub-total for B1	**1**		**1**	
		Total for Horses	**1**		**1**	
Milk	B1	Aminosidin (Paromycin, Paromomycin)	Cyprus	1	1	100
		Benzylpenicillin (Penicillin G)	Germany	13	1	7.7
			Italy	99	1	1
		Cloxacillin	Germany	13	1	7.7
		Sub-total for B1	**3**		**4**	
	B2a	Closantel	Austria	2	1	50
		Sub-total for B2a	**1**		**1**	
	B2e	Diclofen (Diclofenac)	Austria	13	4	30.8
			Estonia	15	3	20
			Germany	25	1	4
		Sub-total for B2e	**3**		**8**	
	B3d	Aflatoxin M1	Italy	48	3	6.2
		Sub-total for B3d	**1**		**3**	
		Total for Milk	**5**		**16**	
Pigs	B1	Enrofloxacin	Malta	2	1	50
		Sum of chlortetracyclin and its 4-epimer	Ireland	2	1	50
		Sum of Oxytetracycline and its 4-epimer	Austria	10	1	10
		Sum of tetracycline and its 4-epimer	Denmark	104	2	1.9
		Sub-total for B1	**4**		**5**	
	B3c	Copper (Cu)	Germany	8	3	37.5
		Sub-total for B3c	**1**		**3**	
		Total for Pigs	**5**		**8**	
Poultry	B1	Doxycycline	Greece	1	1	100
			Poland	19	1	5.3
		Sub-total for B1	**2**		**2**	
	B2b	Salinomycin	Malta	4	1	25
		Sub-total for B2b	**1**		**1**	
	B3f	Fipronil (sum Fipronil and sulfone metabolite (MB46136) expressed as Fipronil)	Spain	21	2	9.5

Category	Group	Substance	Member State	Number of samples analysed (a)	Non-compliant results	% non-compliant results
		Sub-total for B3f	**1**		**2**	
		Total for Poultry	**4**		**5**	
Sheep/goats	B3a	Non-dioxin-like PCBs UB	Italy	2	2	100
		Sum of 6 PCB indicators	Italy	10	5	50
		Sub-total for B3a	**1**		**7**	
		Total for Sheep/goats	**1**		**7**	

(a): The number of samples analysed for the individual substances is presented only if there was at least one non-compliant sample for the substance in question.

Appendix C – List of non-compliant results: import sampling

Category	Group	Substance	Member State	Number of samples analysed[(a)]	Non-compliant results	% non-compliant results
Aquaculture	A6	AOZ (3-amino-2-oxazolidone)	Greece	21	1	4.8
		SEM (semicarbazide)	Germany	162	1	0.6
		Sub-total for A6	**2**		**2**	
	B3c	Cadmium (Cd)	Germany	131	4	3.1
		Total mercury	Germany	147	2	1.4
		Sub-total for B3c	**1**		**6**	
	B3f	Carbonates	Germany	2	2	100
		Sodium carbonates	Germany	2	2	100
		Sub-total for B3f	**1**		**4**	
		Total for Aquaculture	**2**		**12**	
Bovines	B2a	Ivermectin	Malta	2	1	50
		Sub-total for B2a	**1**		**1**	
		Total for Bovines	**1**		**1**	
Pigs	A6	Chloramphenicol	Luxembourg	1	1	100
		SEM (semicarbazide)	Luxembourg	1	1	100
		Sub-total for A6	**1**		**2**	
		Total for Pigs	**1**		**2**	

(a): The number of samples analysed for the individual substances is presented only if there was at least one non-compliant sample for the substance in question.

Appendix D – List of non-compliant results: other sampling

Category	Group	Substance	Member State	Number of samples analysed[(a)]	Non-compliant results	% non-compliant results
Aquaculture	B3e	Leucomalachite Green	France	24	1	4.2
		Malachite Green	France	9	1	11.1
		Sub-total for B3e	**1**		**2**	
		Total for Aquaculture	**1**		**2**	
Bovines	B1	Amoxycillin	Germany	56	1	1.8
		Benzylpenicillin (Penicillin G)	Germany	20,447	6	0
		Dihydrostreptomycin	Germany	45	1	2.2
		Framycetin (Neomycin B)	Germany	1	1	100
		Gentamicin	Germany	45	2	4.4
		Marbofloxacin	Germany	20,447	3	0
		Sulfadimethoxine	Germany	59	1	1.7
		Sum of enrofloxacin and ciprofloxacin	Germany	20,447	2	0
			Italy	197	1	0.5
		Sum of Oxytetracycline and its 4-epimer	Germany	20,447	1	0
		Sum of tetracycline and its 4-epimer	Germany	20,447	1	0
		Tilmicosin	Germany	59	4	6.8
		Tulathromycin	Germany	20,446	3	0
		Sub-total for B1	**2**		**27**	
	B2e	Flunixin	Germany	23	2	8.7
		Meloxicam	Germany	23	3	13
		Tolfenamic acid	Germany	15	1	6.7
		Sub-total for B2e	**1**		**6**	
	B2f	Dexamethasone	Germany	41	4	9.8
			Italy	204	1	0.5
		Sub-total for B2f	**2**		**5**	
		Total for Bovines	**2**		**38**	
Eggs	B2b	Lasalocid	France	153	1	0.7
		Sub-total for B2b	**1**		**1**	
		Total for Eggs	**1**		**1**	
Honey	B1	Sum of Oxytetracycline and its 4-epimer	Italy	81	1	1.2
		Sum of tetracycline and its 4-epimer	France	1	1	100
		Sub-total for B1	**2**		**2**	
		Total for Honey	**2**		**2**	
Milk	B1	Ampicillin	Germany	3	1	33.3
		Benzylpenicillin (Penicillin G)	Germany	3	2	66.7
		Cloxacillin	Germany	3	1	33.3
		Sub-total for B1	**1**		**4**	
	B3d	Aflatoxin M1	Italy	1,353	6	0.4
		Sub-total for B3d	**1**		**6**	
		Total for Milk	**2**		**10**	
Pigs	B1	Amoxycillin	Germany	363	3	0.8
		Benzylpenicillin (Penicillin G)	Germany	261,830	12	0

Category	Group	Substance	Member State	Number of samples analysed[(a)]	Non-compliant results	% non-compliant results
		Doxycycline	Germany	261,832	30	0
		Gentamicin	Germany	191	1	0.5
		Marbofloxacin	Germany	261,830	1	0
		Sulfadimethoxine	Germany	362	1	0.3
		Sulfadimidine	Germany	365	4	1.1
		Sulfonamides	Germany	51	1	2
		Sum of chlortetracyclin and its 4-epimer	Germany	261,830	2	0
		Sum of enrofloxacin and ciprofloxacin	Germany	261,829	6	0
		Sum of Oxytetracycline and its 4-epimer	Germany	261,830	6	0
		Tulathromycin	Germany	261,813	3	0
		Sub-total for B1	**1**		**70**	
	B2f	Dexamethasone	Germany	109	2	1.8
		Sub-total for B2f	**1**		**2**	
		Total for Pigs	**1**		**72**	
Poultry	A3	Normethandrolone	France	39	2	5.1
		Sub-total for A3	**1**		**2**	
	B1	Sulfadiazine	Italy	64	1	1.6
		Sum of Oxytetracycline and its 4-epimer	Italy	63	1	1.6
		Sub-total for B1	**1**		**2**	
	B2b	Narasin	Malta	3	2	66.7
		Sub-total for B2b	**1**		**2**	
		Total for Poultry	**3**		**6**	
Rabbits	B1	Sulfadimethoxine	Italy	40	1	2.5
		Sum of enrofloxacin and ciprofloxacin	Italy	42	1	2.4
		Sum of Oxytetracycline and its 4-epimer	Italy	42	2	4.8
		Sub-total for B1	**1**		**4**	
		Total for Rabbits	**1**		**4**	
Sheep/goats	A3	Epinandrolone (19-Norepitestosterone)	France	35	4	11.4
		Sub-total for A3	**1**		**4**	
	B1	Benzylpenicillin (Penicillin G)	Germany	3,201	1	0
		Sum of Oxytetracycline and its 4-epimer	France	1	1	100
		Sub-total for B1	**2**		**2**	
	B2a	Closantel	France	85	1	1.2
		Sub-total for B2a	**1**		**1**	
	B3a	Sum of 6 PCB indicators	Italy	6	1	16.7
		Sub-total for B3a	**1**		**1**	
		Total for Sheep/goats	**3**		**8**	

(a): The number of samples analysed for the individual substances is presented only if there was at least one non-compliant sample for the substance in question.

Appendix E – Annex I to Directive 96/23/EC

GROUP A – Substances having anabolic effect and unauthorised substances

A.1. Stilbenes, stilbene derivatives, and their salts and esters

A.2. Antithyroid agents

A.3. Steroids

A.4. Resorcylic acid lactones, including zeranol

A.5. Beta-agonists

A.6. Compounds included in Annex IV to Council Regulation (EEC) N° 2377/90 of 26 June 1990[16]

GROUP B – Veterinary drugs and contaminants

B.1. Antibacterial substances, including sulphonamides, quinolones

B.2. Other veterinary drugs

- a) Anthelmintics
- b) Anticoccidials
- c) Carbamates and pyrethroids
- d) Sedatives
- e) Non-steroidal anti-inflammatory drugs (NSAIDs)
- f) Other pharmacologically active substances

B.3. Other substances and environmental contaminants

- a) Organochlorine compounds, including PCBs
- b) Organophosphorus compounds
- c) Chemical elements
- d) Mycotoxins
- e) Dyes
- f) Others

[16] Council Regulation (EEC) No 2377/90 of 26 June 1990 laying down a Community procedure for the establishment of maximum residue limits of veterinary medicinal products in foodstuffs of animal origin. OJ L 224, 18.8.1990, p. 1–8.