TECHNICAL REPORT OF EFSA

Report for 2009 on the results from the monitoring of veterinary medicinal product residues and other substances in live animals and animal products[1]

European Food Safety Authority[2, 3]

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ABSTRACT

In the framework of article 31 of Regulation EC 178/2002, the European Commission asked the European Food Safety Authority to summarise the results of residue monitoring in live animals and animal products in the European Union. The present report summarises the 764 736 monitoring data available from 2009 in the 27 Member States. A total of 445 968 targeted samples and 38 119 suspect samples were reported under the Directive 96/23/EC. Additionally, 280 649 samples tested by inhibitor tests were reported by one Member State. The minimum requirements for sampling frequency laid down in Council Directive 96/23/EC and in Commission Decision 97/747/EC have been fulfilled in 2009 for the vast majority of the Member States. It was not possible to calculate the percentage of positive samples for a specific substance nor to ascertain whether these vary significantly between successive years. Although there were variations in the sampling plans and substances analysed making a comparison difficult, the residue situation in 2009 was similar to the previous two years for all substance groups. There were 1 406 non-compliant samples (0.32 %) out of the total targeted samples. The frequency of non-compliant samples within the substance groups was 0.46 % for antithyroid agents, 0.39 % for steroids, 0.17 % for resorcylic acid lactones, 0.01 % for beta-agonists, 0.07 % for prohibited substances, 0.21 % for antibacterials, 0.16 % for anthelmintics, 1 % for anticoccidials, 0.02 % for carbamates and pyrethroids, 0.11 % for non-steroidal anti-inflammatory drugs, and 0.21 % for other pharmacologically active substances. There were no non-compliant samples for stilbenes and sedatives. In the group of "other substances and environmental contaminants" there were 2.25 % non-compliant samples for chemical elements, 0.19 % for organochlorine compounds, 0.04 % for organophosphorus compounds, 0.22 % for mycotoxins, and 1.65 % for dyes.

KEY WORDS

Veterinary medicinal products, residue monitoring, food safety

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SUMMARY

In the framework of article 31 of Regulation EC 178/2002[4], the European Commission asked the European Food Safety Authority to analyse the results of residue monitoring in live animals and animal products in the Member States. The present report summarises the monitoring data from 2009.

Regulation (EU) No 37/2010[5] establishes maximum limits for residues of veterinary medicinal products in food-producing animals and animal products. Council Directive 96/23/EC[6] 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[7] lays down levels and frequencies of sampling for certain animal products.

As stated in the 2008 report, the current residue database hosted by the European Commission does not contain the total number of samples (compliant and non-compliant) tested for each individual substance. Consequently, it was not possible to calculate the percentage of positive samples for a specific substance and ascertain whether these vary significantly between successive years. Differences in the number of non-compliant results seen overall, for a group of substances or for an individual substance, could thus be due either to a higher number of tests performed, or to a higher non-compliant rate. Also, it was not possible to identify the samples non-compliant for more than one substance.

Comparing to the previous reports, the structure and the data analysis performed in the present report have been improved. However, this may cause some difficulties when comparing the 2009 data to the previous reports' data. In the present report, the EU overall assessment includes all animal/animal product categories and is presented for each main substance group. In the previous reports this included only livestock animals. Assessment of samples analysed, non-compliant samples and non-compliant results are presented for each animal/animal product category separately. Results which were not reported under the Council Directive 96/23/EC are not included in the overall assessment but treated separately. Suspect samples were evaluated separately from the targeted samples.

Altogether, there were 764 736 samples reported in the framework of the 2009 residue monitoring in the EU. A total of 484 087 samples (445 968 targeted samples, 38 119 suspect samples) were reported under the Council Directive 96/23/EC. Additionally, one Member State reported 280 649 samples for inhibitor tests which were not included in the overall assessment.

The minimum requirements for sampling frequency laid down in Council Directive 96/23/EC and in Commission Decision 97/747/EC have been fulfilled in 2009 for the EU overall, and by the vast majority of the individual Member States.

From the total of collected targeted samples, 40.9 % were analysed for substances having anabolic effect and prohibited substances (group A) and 63.1 % for veterinary drugs and contaminants (group B). There were 1 406 non-compliant samples (0.32 %) (1 493 non-compliant results) out of the 445 968 targeted samples. This situation was similar to the one in 2008 when 0.34 % of the targeted

[4] Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety. OJ L 31/1, 1.2.2002, p.1-24.

[5] Commission Regulation (EU) 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 15/1, 20.1.2010, p.1-72.

[6] 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, 23/05/1996, p.10 – 32.

[7] Commission Decision 97/747/EC 27 October 1997 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.

samples were non-compliant[8]. The percentage of non-compliant samples calculated from the total number of samples analysed for substances in that category was: 0.18 % for substances having anabolic effect and prohibited substances (A), 0.21 % for antibacterials (B1), 0.30 % for "other veterinary drugs" (B2), and 1.08 % for "other substances and environmental contaminants" (B3).

Of all the targeted samples analysed for the category "hormones" in all animal/product categories, 0.26 % were non-compliant. As in 2008, there were no non-compliant samples for stilbenes and derivatives (A1). For antithyroid agents (A2), there were 0.46 % non-compliant samples, all for thiouracil, but most likely caused by feeding cruciferous plants. In the group of steroids (A3), which includes some results on corticosteroids, there have been 0.39 % non-compliant samples in all animal and product categories. The non-compliant samples were found in bovines (0.34 %), pigs (0.30 %), sheep and goats (3.65 %), horses (1.27 %), poultry (0.05 %), and aquaculture (0.46 %). The most frequent identified anabolic steroids were alpha-boldenone (n = 65), nandrolone (n = 64), and epinandrolone (n = 17). However, several Member States claimed that residues of boldenone-alpha and epinandrolone (19-norepitestosterone) were more likely of endogenous nature. Non-compliant samples for corticosteroids were reported in group A3 (n = 27) and in group B2f (n = 27). The majority of incidences of non-compliance for corticosteroids were reported in bovines (n = 48). Substances identified were dexamethasone (n = 43), prednisolone (n = 16), and prednisone (n = 5). In the group of resorcylic acid lactones (A4), 0.17 % of the samples were non-compliant for zearanol and taleranol. For beta-agonists (A5), only two non-compliant samples were detected in 2009 (0.01 %). For prohibited substances (A6), 0.07 % of the samples were found to be non-compliant. Substances identified were chloramphenicol (n = 25), nitrofurans (n = 25) and nitroimidazoles (n = 9).

For antibacterials (B1), 0.21 % of the samples analysed under Directive 96/23 were non-compliant. Additionally, Germany reported non-compliant results from applying inhibitor tests. The highest frequencies of non-compliant samples for antibacterials were found in honey (0.98 %), rabbit meat (0.63 %), and aquaculture (0.48 %).

There were 0.26 % non-compliant samples for substances in the category "other veterinary drugs" (B2). A relatively high proportion of non-compliant samples was found for anticoccidials (B2b): 2.05 % in poultry, 1.19 % in eggs, 4.44 % in rabbits, and 0.54 % in farmed game. Non-compliances for anthelmintics (B2a) were reported in bovines (0.14 %), pigs (0.1 %), sheep and goats (0.28 %), aquaculture (0.39 %), and milk (0.3 %). For carbamates and pyrethroids (B2c), there was only one non-compliant sample in pigs, and one in wild game. No non-compliant sample was reported for sedatives (B2d). For non-steroidal anti-inflammatory drugs (B2e) there were non-compliant samples in bovines (0.13 %), sheep and goats (0.2 %), horses (0.6 %), poultry (0.46 %), milk (0.03 %), and rabbits (1.39 %). Non-compliant samples for "other pharmacologically active substances" (B2f) were reported in bovines (0.37 %), poultry (0.2 %), and pigs (0.09 %).

There were 1.08 % non-compliant samples in the group of "other substances and environmental contaminants (B3)". The highest percentage of non-compliant samples in almost all species was found for chemical elements (B3c) (2.25 %). Cadmium, lead, and mercury were the most frequently reported elements. Instances of non-compliance for organochlorine compounds (B3a) and organophosphorus compounds (B3b) were much lower: 0.19 % and 0.04 %, respectively. For mycotoxins (B3d), nine non-compliant samples for ochratoxin A in pigs, one for aflatoxin B1 in sheep and goats, and five for aflatoxin M1 in milk were reported. Dyes (B3e) were reported in aquaculture (1.6 %). Substances found were malachite green and leuco-malachite-green.

The residue situation in 2009 was similar to the two previous years for all substance groups. However, because the sampling plan and the spectrum of analysed substances were not necessarily the same over the three years, such comparisons should be regarded as having a high degree of uncertainty.

[8] The report for 2008 indicates a total of 1 923 non-compliant results out of 437 294 targeted samples and 269 764 samples for inhibitor tests reported by one Member State. Excluding the inhibitor tests, which actually were not reported under the Council Directive 96/23/EC, there were 1499 non-compliant samples (0.34 %) (1 512 non-compliant results) out of the 437 294 targeted samples.

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BACKGROUND AS PROVIDED BY THE EUROPEAN COMMISSION

Council Directive 96/23/EC requires Member States to adopt and implement a national residue monitoring plan for specific groups of residues. The Directive lays down sampling levels and frequency, as well as the group of substances to be monitored for each category of live animals or animal products. Member States must submit to the Commission, by no later than 31 March of each year, the national monitoring plans together with the monitoring results for the previous year. According to Article 8.4 of the aforementioned Directive, each year or whenever it deems it necessary, the Commission shall report to the Member States on the outcome of the surveys. According to Article 8.5, the Commission sends to the European Parliament and the Council a Communication on the results and actions taken at regional, national or Community level. The Communication is drafted on the basis of a summary report which includes the main results reported by the Member States as the outcome of the implementation of national residue plans. Summary reports have been published since 1998. Since 2001, the Commission has published the annual Communication to the Parliament and the Council (http://ec.europa.eu/food/food/chemicalsafety/residues/control_en.htm).

TERMS OF REFERENCE AS PROVIDED BY THE EUROPEAN COMMISSION

In the framework of article 31 of Regulation EC 178/2002, the European Commission asked EFSA for assistance in preparing an annual compilation (report) of the results of residue monitoring in live animals and animal products in the Member States. EFSA shall present its report to the Member States in the Standing Committee of the Food Chain and Animal Health (SCFCAH). Together with the comments from the Member States and the answers to the questionnaires on actions taken as a consequence of non-compliant results, the Commission will use EFSA's report, for the drafting of the Annual Report and of the Communication to the European Parliament and the European Council.

Data used in the report were collected from Member States under Directive 96/23/EC and stored in the Commission's residue application. DG for Health & Consumers (DG SANCO) is in charge of the overall coordination of the residue data collection from Member States, performs a preliminary format check and examines the data for inconsistencies, omissions or misreporting. It also requests that, where appropriate, the Member States, check and update data that have been uploaded onto the application. When data provided are considered by DG SANCO as being in line with the requirements of Directive 96/23/EC, EFSA starts to produce its contribution. Data provided by the Member States cannot be used for any other purpose than the drafting of the annual report.

ANALYSIS OF RESIDUE MONITORING DATA

1. Introduction

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 lays down rules for levels and frequencies of sampling for milk, eggs, honey, rabbit meat and game.

Member States should forward to the Commission the results of their residue monitoring by 31 March of each year at the latest. National 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.

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 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 all pharmacologically active substances, whether active substances, excipients or degradation products and their metabolites, which remain in food obtained from animals.

Unauthorised substances or products mean substances or products the administering of which to animals is 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 legislations.

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 2005/657/EC (1 September 2002), the term for analytical results exceeding the permitted limits (in previous reports termed “positives”) is “non-compliant”. The 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 results.

Maximum residue limit means 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, maximum residue limits (MRLs) are established according to the procedures laid down in Regulation (EC) No 470/2009 of the European Parliament and of the Council of 6 May 2009[9]. Pharmacologically active substances and their classification regarding maximum residue limits are set out in Commission Regulation (EU) No 37/2010 of 22 December 2009[10].

For pesticides, MRLs are laid down in Regulation (EC) 396/2005[11]. 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) 1881/2006[12]. 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[13] MRPL means 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, medroxyprogesterone acetate were established by Commission Decision 2003/181/EC[14] and malachite and leuco malachite green were established by Commission Decision 2004/25/EC[15].

2. Objectives

The objective of the present report is to summarise the monitoring data from 2009 submitted under Directive 96/23/EC. Data analysis was mainly focused on:

- Production volume and number of samples collected in each Member State. These data were used to check that 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 Annex C).
- 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.

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[9] 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 152/11, 16.6.2009, p.1-12.

[10] Commission Regulation (EU) 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 15/1, 20.1.2010, p.1-72.

[11] Regulation (EC) 396/2005 of the European Parliament and of the Council of 23 February 2005 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 70/1, 16.3.2005, p. 1-16.

[12] Commission Regulation (EC) 1881/2006 of 19 December 2006 setting maximum levels for certain contaminants in foodstuffs. OJ L 364/5, 20.

[13] 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 221/8, 17.8.2002, p.1-29.

[14] 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, 15.3.2001, 17-18.

[15] 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, L6, 10.1.2004, 38-39.

- EU overall distribution of non-compliant results for bovines, pigs, sheep and goats, horses, and poultry.

3. Materials and Methods

3.1. Materials

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 the results lays down rules for the analytical methods to be used in the testing of official samples and specifies common criteria for the interpretation of analytical results. Data used in this report have been collected from Member States under Directive 96/23/EC and stored in DG SANCO's residue application. 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).

The DG for Health and Consumers (DG SANCO) is in charge of the overall coordination of the residue data collection from Member States (see "Terms of reference"). 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). The respective institution is also in charge of the aggregation of the data received from the various central and regional departments. DG SANCO verifies whether or not the transmitted results are in line with the established monitoring plan and indicates misreporting. In case of misreporting the Member States in question are asked to update their data.

Aggregate data are transmitted to the Commission at the following level of detail:

- Animal category and animal products: bovines, pigs, sheep and goats, horses, poultry, rabbit, farmed game, wild game, aquaculture, milk, eggs, and honey.
- Production volume expressed in 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.
- Sampling strategy: targeted, suspect, and others.
- Number of samples analysed for each substance group as defined in Annex I of Directive 96/23/EC.
- Number of non-compliant results within each substance group or subgroup and within each animal category or animal product. Non-compliant results are listed by the substance identified. Additional information about the non-compliant samples is given in a separate document (Questionnaires) provided by the Member States. This information is not included in the database.

In this context, it is important to note that the number of non-compliant samples is not necessarily the same as the number of non-compliant results. One sample can be non-compliant for more than one result and therefore the sum of non-compliant results might be higher than the sum of non-compliant samples. The information on sample identification, sample matrix and the corresponding results was not available in the database and thus it was impossible to perform a more elaborate statistical analysis at the matrix level (e.g. meat, liver, blood, etc.) and to trace back the non-compliant samples for more substances.

Since information on the number of total analyses performed for an individual substance was only transmitted by the Member States which reported at least one non-compliant result for the respective substance, it was not possible to extract the full spectrum of substances analysed within one group or subgroup.

3.2. Methods

For the data analysis, the database and the data analysis reports available in DG SANCO's residue application (Business Object application) were used. From these reports it was possible to extract the production volume reported by the Member States and the number of samples analysed for each animal/animal product category and for each substance group or subgroup. To check whether the minimum required sampling frequencies had been fulfilled, the number of samples collected in 2009 was referred to the production of 2008. The number of non-compliant samples could be extracted at the group or subgroup level. At the substance level only Member States which found at least one non-compliant result reported the number of samples analysed for a particular substance. The shortcomings mentioned in 3.1 represented considerable limitations in performing more elaborate statistical analysis.

4. Results

Comparing to the previous reports, the structure and the data analysis performed in the present report have been modified as follows:

- The EU overall assessment includes all animal/animal product categories and is presented for each main substance group. In the previous reports this included only livestock animals;
- Assessment of samples analysed, non-compliant samples and non-compliant results are presented for each animal/animal product category separately;
- Results which were not reported under the Council Directive 96/23/EC are not included in the overall assessment but treated separately;
- Suspect samples are evaluated separately from the targeted samples;
- Non-compliant results for the individual substances in each animal/animal product category are listed in Annex A (targeted samples) and Annex B (suspect samples).

These changes may cause some difficulties when comparing the data of the 2009 report to the data of the previous reports.

4.1. EU overall assessment

This chapter is intended 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. Further details on the non-compliant samples found in each animal/product category are presented in chapters 4.2 to 4.13.

Altogether, 764 736 samples were reported in the framework of the 2009 residue monitoring in the EU. A total of 484 087 samples (445 968 targeted samples, 38 119 suspect samples) were reported under Directive 96/23/EC. In addition to the residue control plan, Germany reported 280 649 samples for inhibitor tests (275 623 targeted samples, and 5 026 suspect samples).

Of the total of targeted samples, 40.9 % were analysed for substances having an anabolic effect and unauthorised substances (group A) and 63.1% for veterinary drugs and contaminants (group B). Of the 445 968 targeted samples 1 406 were non-compliant (0.32%) (1 493 non-compliant results). This situation was similar to the one in 2008 when of 437 294 targeted samples 1 499 were non-compliant (0.34 %). The percentage of non-compliant samples calculated from the total number of samples analysed for substances in that category was: 0.18 % for substances having an anabolic effect and unauthorized substances (A), 0.21 % for antibacterials (B1), 0.30 % for the "other veterinary drugs" (B2) and 1.08 % for "other substances and environmental contaminants" (B3) (Table 1, Figure1).

Table 1: Number of target samples analysed, non-compliant samples and non-compliant results in all species and products categories.

Substance group [(a)]	Samples analysed		Non-compliant samples		Non-compliant results
	n	%	n	%	n
Total	445 968	100.0	1 406	0.32	1 493
A	182 344	40.9	320	0.18	348
A1	21 815	4.9	0	0.00	0
A2	10 013	2.2	46	0.46	48
A3	47 086	10.6	183	0.39	193
A4	22 132	5.0	38	0.17	56
A5	43 161	9.7	2	0.01	2
A6	66 971	15.0	49	0.07	49
B	281 486	63.1	1 087	0.39	1 143
B1	155 432	34.9	332	0.21	350
B2	86 466	19.4	224	0.26	276
B2a	25 709	5.8	42	0.16	44
B2b	18 597	4.2	187	1.00	187
B2c	8 710	2.0	2	0.02	2
B2d	10 147	2.3	0	0.00	0
B2e	13 624	3.1	14	0.10	14
B2f	12 253	2.7	26	0.21	29
B3	45 014	10.1	87	1.08	519
B3a	16 642	3.7	32	0.19	50
B3b	7 444	1.7	3	0.04	3
B3c	15 571	3.5	350	2.25	409
B3d	6 892	1.5	15	0.22	15
B3e	2 119	0.5	35	1.65	40
B3f	4 270	1.0	2	0.05	2

(a): as detailed in Annex C.

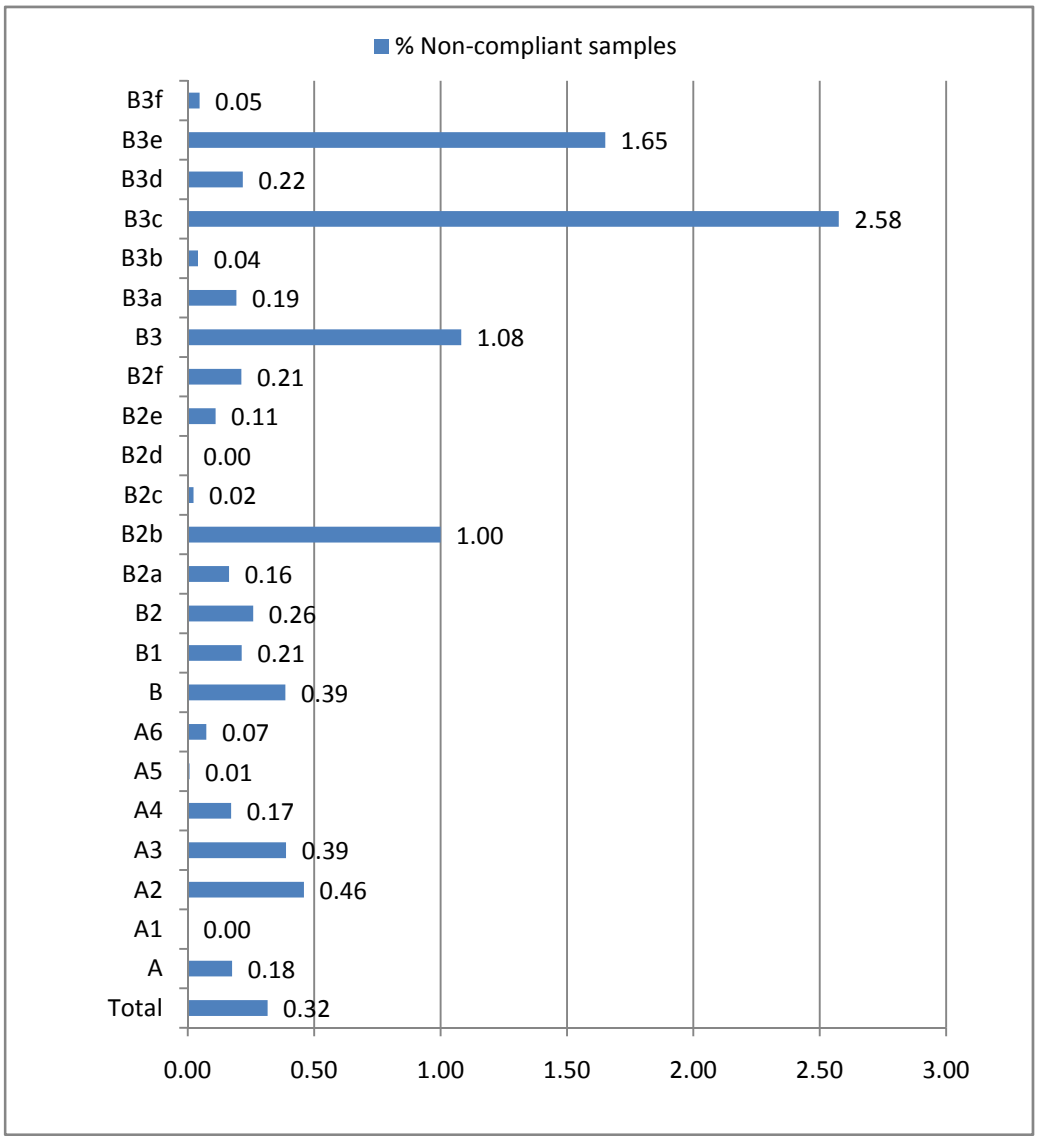


Figure 1: Percentage of non-compliant samples in each substance group.

4.1.1. Hormones

Hormones are chemical substances released in the body and their function is to control and regulate the activity of certain cells or organs. Essentially they are chemical messengers that transport a signal from one cell to another. Directive 96/22/EC prohibits the use of hormones in food producing animals except for well-defined therapeutic and zootechical purposes and under strict veterinary control.

This chapter 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 with growth promoting purposes, but their presence in food 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 (101 046 samples) there were 267 non-compliant samples (0.26 %).

The number of targeted samples analysed for stilbenes and derivatives (A1) in all animal/product categories together was 21 815. As in 2008, no non-compliant samples for this group were detected.

Antithyroid agents (A2) have been analysed in 10 013 targeted samples of which 46 samples were non-compliant (0.46 %). All non-compliant samples in the group A2 were for thiouracil. They were found in bovines (n = 27; 0.5 %), pigs (n = 11; 0.35 %), and sheep and goats (n = 8; 2.9 %). Residues of thiouracil resulted most probably from feeding cruciferous plants. Pinel et al. (2006) demonstrated that urinary excretion of thiouracil in adult bovine submitted to a cruciferous diet can give erroneous indications of the possible illegal use of thyrostats in meat production animals.

For steroids (A3), of the 47 086 samples analysed in all animal species and product categories, 183 were non compliant. The non-compliant samples were found in bovines (n = 99; 0.34 %), pigs (n = 35; 0.30 %), sheep and goats (n = 43; 3.65 %), horses (n = 2; 1.27 %), poultry (n = 2; 0.05 %), and aquaculture (n = 2; 0.46 %). The most frequently identified anabolic steroids were alpha-boldenone (n = 65), and nandrolone (n = 64). Several Member States claimed that residue findings of boldenone-alpha and epinandrolone (19-norepitestosterone) were not attributable to illegal treatment of animals. The positive findings were more likely linked to the endogenous production of these substances as proved in previous studies (Clouet et al., 1997; Samuels et al. 1998).

For resorcylic acid lactones (A4), of 22 132 samples analysed, 38 non-compliant samples (0.17 %) were found. There were 37 non-compliant samples in bovines (0.32 %) and one in sheep and goats (0.18 %).

4.1.1.1. Corticosteroids

Corticosteroids are a class of steroid hormones that are produced in the adrenal cortex. They have a wide implication in the metabolism and are used in the therapy of several disorders. One of their side effects is the increase of appetite and weight gain. There are several substances e.g. dexamethasone, betamethasone and prednisolone legally used in the therapy of food producing animals in the EU. The legal utilisation of corticosteroids, as for any other veterinary medicine, is strictly regulated in the EU, with withdrawal periods between treatment and slaughtering. Due to their growth promoting effects corticosteroids might be used in cocktails with other illegal substances in animal feeding. Thus, some Member States (e.g. IT, NL) include these substances in group A3 (steroids), whereas others allocate them to the group B2f (other pharmacologically active substances). The Member States that include all corticosteroids in group A3 argue that in this way they have more legal power against illegal use.

Of the total of 54 non-compliant results for corticosteroids in all species (targeted samples), 27 were reported in group A3 and 27 in group B2f. The majority of non-compliant results for corticosteroids has been reported in bovines (n = 48). Substances identified were dexamethasone (n = 43), prednisolone (n = 16) and prednisone (n = 5) (Table 2).

Table 2: Overview on corticosteroids non-compliant results.

Substance	Substance group [(a)]	Species	Number of non-compliant results	Member States reporting non-compliant results
Dexamethasone	A3	bovine	23	IT, NL
	B2f	bovine	10	BE, DE, ES, UK, PL
Prednisolone	A3	bovine	3	IT
	B2f	bovine	9	BE, ES, FR
	B2f	pigs	4	BE, ES, FR
Prednisone	A3	bovine	1	IT
	B2f	bovine	2	ES
	B2f	pigs	2	FR

(a): as detailed in Annex C.

4.1.2. 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[16] prohibits the use of beta-agonists in food producing animals except for well-defined therapeutic purposes and under strict veterinary control. In 2009, 43 161 targeted samples were analysed for beta-agonists and only two non-compliant samples (0.01 %) were reported – in bovines. This is a similar situation to 2008 when also only two samples were found non-compliant for beta-agonists.

4.1.3. 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 2009 residue monitoring, 66 971 samples were analysed for prohibited substances and 49 samples (0.07 %) were found to be non-compliant. Altogether, there were 25 non-compliant results for chloramphenicol, 15 for nitrofurans and nine for nitroimidazoles (Table 3). The distribution of the non-compliant results by individual substances and MS is presented in Annex I.

Table 3: Overview on the non-compliant results for prohibited substances.

Substance	Species	Number of non-compliant results	Number of Member States reporting non-compliant results
Chloramphenicol	bovine	2	2
	pigs	10	6
	sheep/goats	1	1
	poultry	9	4
	milk	3	3
Nitrofurans			
SEM (semicarbazide)	bovine	5	2
	pigs	1	1
	sheep/goats	4	1
	poultry	1	1
Nitrofurazone	pigs	1	1
AOZ (3-amino-2-oxazolidone)	poultry	2	2
AMOZ (5-methylmorpholino-3-amino-2-oxazolidone)	farmed game	1	1
Nitroimidazoles			
Dimetridazole	bovine	1	1
	pigs	1	1
Metronidazole	pigs	2	2
Hydroxymetronidazol	pigs	3	1
Ronidazole	sheep/goats	2	1

[16] Council Directive 96/22/EC of 29 April 1996 concerning the prohibition on the use in stock farming of certain substances having a hormonal or thyrostatic action and of beta-agonists, and repealing Directives 81/602/EEC, 88/146/EEC and 88/299/EEC. OJ, L 125, 29.5.1996, 3-9.

4.1.4. Antibacterials

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

Methods of analysis of antimicrobials can be grouped in three categories: microbiological, immunochemical, or physico-chemical. Microbiological methods are fast screening methods which allow a high sample throughput but limited information is obtained about the substance identification and its concentration in the sample. When residues are found in a screening test, a confirmatory test shall be carried out, which normally involves a more sophisticated testing method providing full or complementary information enabling the substance to be identified precisely and confirming that the MRL has been exceeded.

Immunochemical methods are rapid, selective, and sensitive and are widely applied in some areas of residue analysis.

Physico-chemical methods are more sophisticated and they allow a more accurate identification and quantification of the substance.

In the case of antibacterials, some of the screening tests are based on microbiological tests, whereby the sample or sample extract is tested for inhibition of bacterial growth. If, after a specific period of incubation, the sample inhibited the growth of the bacteria, it is considered that an antibacterial substance was present in the sample, but the specific substance is not identified. Given that this is a qualitative analytical method, a misinterpretation of the results cannot be ruled out and some false positives can occur.

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.

In Germany, for instance, there are two different strategies. One is to fulfil the requirements of the Directive 96/23/EC and for this purpose all positive results obtained by inhibitor tests are confirmed by physico-chemical methods to check compliance with MRLs. For the second strategy, analyses are carried out by inhibitor tests and samples for which positive results are obtained are considered unfit for human consumption according to national legislation. In 2009, 275 623 targeted samples were analysed under this scheme (17 370 for bovines, 255 115 for pigs, 2 919 for sheep and goats, 62 for horses, 81 for poultry, 53 for aquaculture, nine for wild game, one for milk and 13 for rabbit meat) giving rise to 677 positive inhibitor tests (126 in bovines, 532 in pigs, eight in sheep and goats, nine in aquaculture, and two in poultry).

The total number of analyses carried out in 2009 for antimicrobials in targeted samples (inhibitor test reported by Germany are not included) was 155 432, of which 332 (0.21 %) were non-compliant (Table 1). The number of samples analysed and the percentage of non-compliant samples in each animal category is presented in Figure 2.

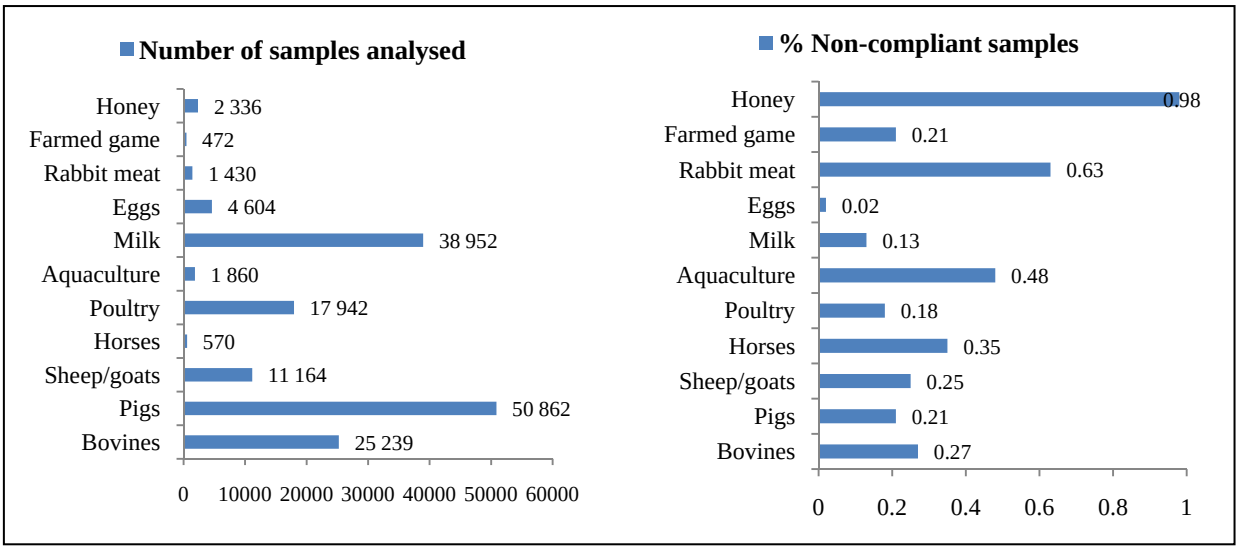


Figure 2: Number of samples analysed and percentage of non-compliant samples for antibacterials (B1) in animal/product categories.

4.1.5. 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 2009 monitoring, 86 466 targeted samples were analysed for substances in the group B2 and 224 samples (0.26 %) 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. For example, for bovines, the anthelmintics, NSAIDs and other pharmacologically active substances (corticosteroids are largely represented in this subgroup) were more frequently analysed than anticoccidials or sedatives. For poultry, anticoccidials was the largest subgroup whereas for horses it was the NSAIDs subgroup. 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 4.

Regarding the number of samples analysed in each B2 subgroup the highest proportion of non-compliant samples was found for anticoccidials (B2b): 2.05 % in poultry, 1.19 % in eggs, 4.44 % in rabbits, and 0.54 % in farmed game.

Non-compliant samples for anthelmintics (B2a) were reported in bovines (0.14 %), pigs (0.1 %), sheep and goats (0.28 %), aquaculture (0.39 %), and milk (0.3 %).

For carbamates and pyrethroids (B2c), there was one non-compliant sample in pigs (0.04 %), and one in wild game (1.27%).

Of the 10 147 targeted samples were analysed for sedatives (B2d) no non-compliant sample was reported.

For non-steroidal anti-inflammatory drugs (B2e) non-compliant samples were reported in bovines (0.13 %), sheep and goats (0.2 %), horses (0.6 %), poultry (0.46 %), milk (0.03 %), and rabbits (1.39 %).

Non-compliant samples for "other pharmacologically active substances" (B2f) were reported in bovines (0.37 %), poultry (0.2 %), and pigs (0.09 %).

More details on the number of samples analysed and non-compliant samples in each category are given in the sections 4.2 to 4.13 and in Annex I.

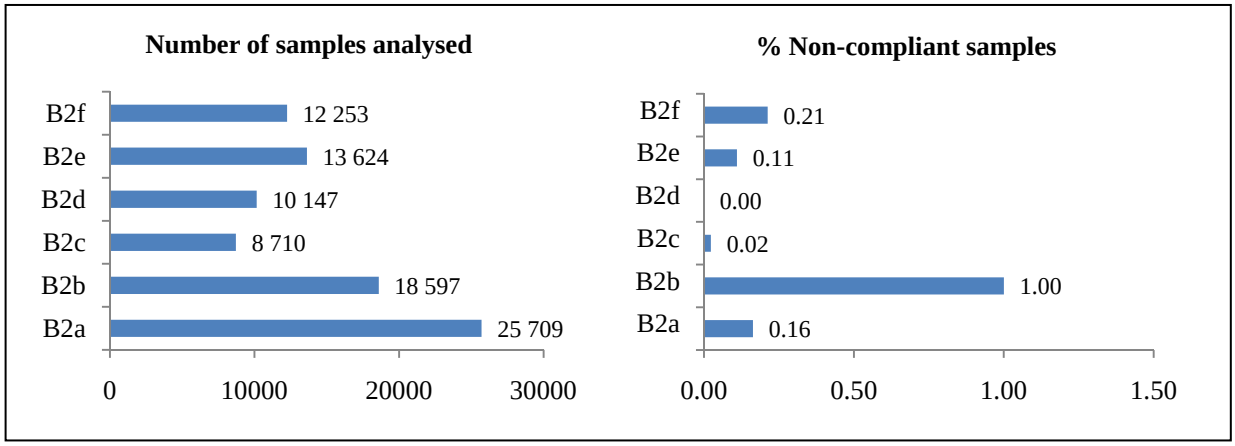


Figure 3: Number of samples analysed within the group "other veterinary drugs" (B2) and the percentage of non-compliant samples.

Table 4: 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		B2b		B2c		B2d		B2e		B2f	
	n[(a)]	% nc[(b)]	n	% nc	n	% nc	n	% nc	n	% nc	n	% nc
Bovines	4 875	0.14	1 219	0	1 771	0	2 105	0	4 788	0.13	5 676	0.37
Pigs	7 649	0.1	5 724	0	2 523	0.04	7 343	0	3 857	0	4 398	0.09
Sheep/goats	3 239	0.28	853	0	1 135	0	579	0	490	0.2	621	0
Horses	242	0	41	0	73	0	97	0	332	0.6	111	0
Poultry	2 989	0	6 390	2.05	1 561	0	14	0	655	0.46	505	0.2
Aquaculture	765	0.39	34	0	275	0	0	0	0	0	103	0
Milk	5 073	0.3	351	0	257	0	0	0	3 370	0.03	394	0
Eggs	441	0	3 530	1.19	196	0	0	0	1	0	1	0
Rabbit	167	0	270	4.44	84	0	3	0	72	1.39	47	0
Farmed game	250	0	185	0.54	93	0	6	0	59	0	4	0
Wild game	0	0	0	0	79	1.27	0	0	0	0	0	0
Honey	19	0	0	0	663	0	0	0	0	0	393	0

(a): Number of samples analysed
(b): Percentage of non-compliant samples

4.1.6. 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 2009 residues monitoring 45 014 samples were analysed for substances in group B3 of which 487 samples were found to be non-compliant (1.08 %). 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. Similar 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 B2 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 subgroup B3c "chemical elements" (2.25 %). Cadmium, lead, and mercury were the elements most frequently identified as responsible for non-compliance.

Instances of non-compliance for organochlorine compounds (B3a) and organophosphorus compounds (B3b) were lower: 0.19 % and 0.04 %, respectively.

For mycotoxins (B3d), nine non-compliant samples for ochratoxin A in pigs, one for aflatoxin B1 in sheep and goats and five samples for aflatoxin M1 in milk were reported.

Dyes (B3e) were reported in aquaculture (1.6 %). Substances found were malachite green and leuco malachite green.

More details on the number of samples analysed and non-compliant samples in each category are given in the sections 4.2 to 4.13 and in Annex I.

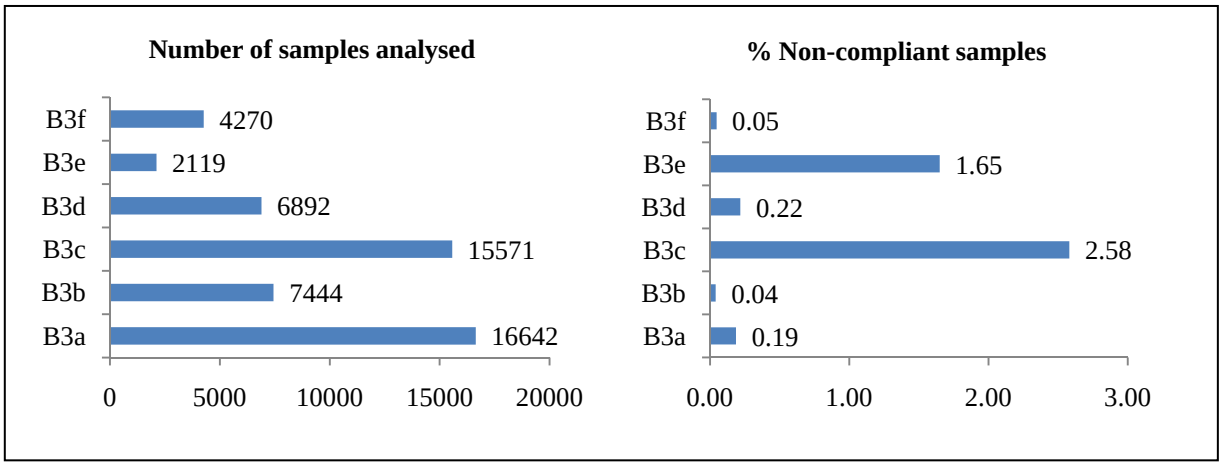


Figure 4: Number of samples analysed within the group “other substances and environmental contaminants” (B3) and the percentage of non-compliant samples.

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		B3b		B3c		B3d		B3e		B3f	
	n[(a)]	% nc[(b)]	n	% nc	n	% nc	n	% nc	n	% nc	n	% nc
Bovines	2 847	0.21	1 711	0	2 832	1.69	1 106	0	0	0	1 094	0
Pigs	4 285	0.07	2 369	0	4 273	2.43	2 039	0.44	0	0	1 266	0
Sheep/goats	1 065	0	1 094	0.18	1 010	2.08	252	0.4	0	0	68	0
Horses	135	0	83	0	668	4.94	56	0	0	0	11	0
Poultry	2 559	0.12	279	0	1 834	0.11	720	0	0	0	427	0
Aquaculture	829	0.36	108	0	747	0.4	215	0	2 119	1.6	22	0
Milk	1 612	0.12	910	0.11	1 008	0.5	2 376	0.21	0	0	306	0
Eggs	1 818	0.33	188	0	159	0	0	0	0	0	475	0
Rabbit	208	0	22	0	208	0.48	43	0	0	0	15	0
Farmed game	164	0	29	0	262	5.73	37	0	0	0	48	0
Wild game	446	1.57	78	0	2008	5.68	10	0	0	0	213	0
Honey	674	0.15	573	0	611	0.65	38	0	0	0	125	1.6

(a): Number of samples analysed
(b): Percentage of non-compliant samples

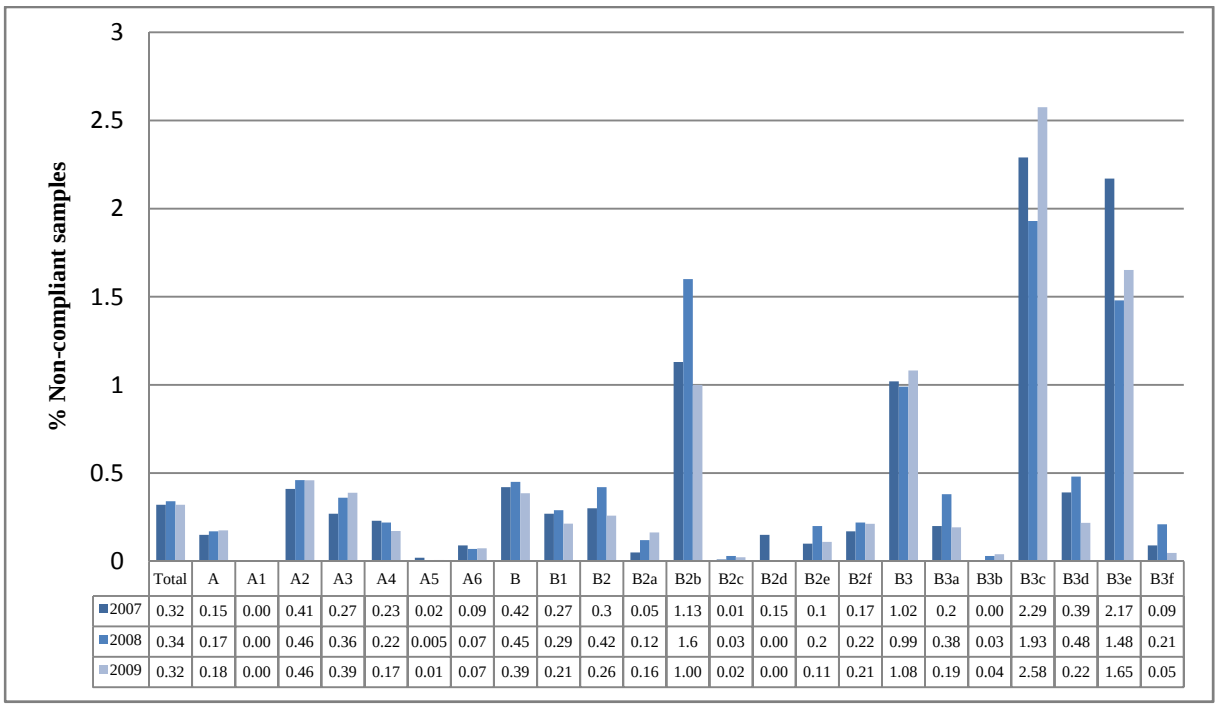
4.1.7. Multi-year analysis

It is important to note that this analysis is based on data that were partially aggregated. Also, the number of samples analysed for each substance group and animal/product category and the spectrum of substances analysed was not necessarily the same over the three years. Therefore this analysis should be regarded as having a high degree of uncertainty. The purpose of this exercise is to check whether a major concern could be identified in 2009 compared to the previous two years and if yes, a more in-depth analysis should provide clarifications.

An overall picture covering the period 2007 - 2009 (EU 27) is presented in Figure 5. The percentage of overall non-compliant samples in 2009 was in the same range as in the previous two years (around 0.3 %).

Among hormones and prohibited substances (group A) less than 0.2% of the samples were non-compliant over the three years. There was no non-compliant sample for stilbenes (A1) in the three years included in the analysis and only an extremely limited number of non-compliant samples have been reported for beta-agonists (A5) in 2008 (n = 2) and 2009 (n = 3). The percentage of non-compliant samples for antithyroid agents (A2), steroids (A3), resorcylic acid lactones (A4), and prohibited substances (A6) was in the same range over the three years. With regard to the steroids (A3) (0.3 - 0.4 % non-compliant samples) it is important to mention that some Member States report corticosteroids in this group (see chapter 4.1.1.1) and thus they have been included in this calculation.

In the groups of veterinary drugs (B1 and B2) the highest percentage of non-compliant samples was for anticoccidials (1.0 – 1.6 %) in each of the three years. Non-compliant samples for antibacterials (B1), anthelmintics (B2a), non-steroidal anti-inflammatory drugs (B2e), and “other pharmacologically active substances" (B2f) were found within a lower range (0.1 – 0.4 %). Non-compliant samples for carbamates and pyrethroids (B2c) were found in only a few isolated cases. There were no non-compliant samples for sedatives (B2d) in 2008 and 2009 (0.15 % in 2007).



	Total	A	A1	A2	A3	A4	A5	A6	B	B1	B2	B2a	B2b	B2c	B2d	B2e	B2f	B3	B3a	B3b	B3c	B3d	B3e	B3f
2007	0.32	0.15	0.00	0.41	0.27	0.23	0.02	0.09	0.42	0.27	0.3	0.05	1.13	0.01	0.15	0.1	0.17	1.02	0.2	0.00	2.29	0.39	2.17	0.09
2008	0.34	0.17	0.00	0.46	0.36	0.22	0.005	0.07	0.45	0.29	0.42	0.12	1.6	0.03	0.00	0.2	0.22	0.99	0.38	0.03	1.93	0.48	1.48	0.21
2009	0.32	0.18	0.00	0.46	0.39	0.17	0.01	0.07	0.39	0.21	0.26	0.16	1.00	0.02	0.00	0.11	0.21	1.08	0.19	0.04	2.58	0.22	1.65	0.05

Figure 5: Percentage of non-compliant samples reported in relation to the total number of targeted samples analysed for the respective group in 2007, 2008 and 2009 (substance groups are detailed in Annex C).

In the group of "other substances and environmental contaminants" (B3) the percentage of non-compliant samples remained constant over the three years at 1 %. The most frequently reported non-compliant samples in this category, in each of these three years, were for chemical elements (B3c) and dyes (B3e) (1.5 – 2.5 %). Non-compliant samples in the groups of organochlorine compounds (B3a), mycotoxins (B3d), and "other substances" (B3f) represented about 0.1 – 0.4 % of the total number of samples analysed in each year. For organophosphorus compounds (B3b), the number of non-compliant samples varied from zero to three per year.

Although this analysis could be biased by several factors, it seems that the frequency of non-compliant samples in all substance groups was similar in 2007, 2008 and 2009 with no major variation in 2009 compared to the previous two years (EC, 2007; EFSA, 2010).

4.2. Bovines

Council Directive 96/23/EC requires that the minimum number of bovine animas 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 fulfilled in 2009 for the EU overall, and by the vast majority of the Member States (Table 6). Only one Member State (RO) did not achieve the minimum required. Percentage of targeted samples taken in each Member State for the reported production of bovines is presented in Table 7.

Table 6: Production of bovines and number of targeted samples over 2007-2009.

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	0.4
2009 (EU 27)	26 677 946	127 897	0.48	

(a): relating to the production of the previous year.

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

Country	Production 2008 (animals)	Samples 2009 (n)	% Animals tested
AT	690 974	3 781	0.55
BE	850 000	5 204	0.61
BG	29 395	236	0.80
CY	18 662	982	5.26
CZ	284 245	1 418	0.50
DE	3 786 388	15 080	0.40
DK	486 448	2 130	0.44
EE	53 946	327	0.61
ES	2 520 036	12 766	0.51
FI	290 095	1 276	0.44
FR	5 021 289	20 461	0.41
GR	262 507	1 467	0.56
HU	126 999	711	0.56
IE	1 633 272	7 791	0.48
IT	3 022 106	15 803	0.52
LT	212 217	1 054	0.50
LU	26 603	123	0.46
LV	123 187	481	0.39
MT	5 453	68	1.25
NL	1 943 000	14 443	0.74
PL	1 532 154	6 466	0.42
PT	374 760	1 593	0.43
RO	244 453	346	0.14
SE	422 825	1 829	0.43
SI	131 395	583	0.44
SK	87 453	597	0.68
UK	2 718 840	10 881	0.40
Total	26 898 702	127 897	
Min			0.14
Max			5.26
Median			0.50

The distribution of samples analysed, non-compliant samples and non-compliant results in bovines and the number of Member States reporting non-compliant results is presented in Table 8. Of the 127 897 samples analysed in this category 331 (0.26 %) were non-compliant (368 non-compliant results). The non-compliant samples were reported by 21 Member States.

No non-compliant samples were reported for the group A1. In the group A2, six Member States reported a total of 29 non-compliant samples, all for thiouracil. In the group A3, six Member States reported 99 non-compliant samples (108 non-compliant results) of which 54 for boldenone and boldenone-alpha, 27 for corticosteroids. Together with the results for corticosteroids reported in the group B2f there were 49 non-compliant samples for corticosteroids in bovine animals. In the group A4, four Member States reported 37 non-compliant samples (55 non-compliant results) for alpha and beta-zearalanol. Beta-agonists (A5) accounted for only two samples (one for clenbuterol and one for isoxsuprine) by two Member States. Prohibited substances (A6) were found in 8 samples. Substances identified were: chloramphenicol, dimetridazole, and semicarbazide.

For antibacterials (B1), 13 Member States reported a total of 68 non-compliant samples (71 non-compliant results). Among the substances identified, oxytetracycline was the most frequent one (21 non-compliant samples).

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

Substance group [(a)]	Samples analysed		Non-compliant samples		Non-compliant results	MS reporting non-compliant results
	n	%	n	%	n	n
Total	127 897	100.0	331	0.26	368	21
A	78 996	61.8	174	0.22	202	21
A1	10 805	8.4	0	0.00	0	0
A2	5 539	4.3	27	0.49	29	6
A3	29 445	23.0	99	0.34	108	6
A4	11 664	9.1	37	0.32	55	4
A5	23 473	18.4	2	0.01	2	2
A6	14 493	11.3	8	0.06	8	5
B	52 686	41.2	156	0.30	166	17
B1	25 239	19.7	68	0.27	71	13
B2	20 434	16.0	34	0.17	37	9
B2a	4 875	3.8	7	0.14	9	5
B2b	1 219	1.0	0	0.00	0	0
B2c	1 771	1.4	0	0.00	0	0
B2d	2 105	1.6	0	0.00	0	0
B2e	4 788	3.7	6	0.13	6	3
B2f	5 676	4.4	21	0.37	22	6
B3	9 590	7.5	54	0.56	58	13
B3a	2 847	2.2	6	0.21	8	5
B3b	1 711	1.3	0	0.00	0	0
B3c	2 832	2.2	48	1.69	50	10
B3d	1 106	0.9	0	0.00	0	0
B3e	0	0.0	0	0.00	0	0
B3f	1 094	0.9	0	0.00	0	0

(a): as detailed in Annex C.

In the group B2, non-compliant samples were reported for anthelmintics (B2a), non-steroidal and steroidal anti-inflammatory drugs (B2e and B2f).

In the group B3, there were eight non-compliant samples for organochlorine compounds (B3a) and 55 for heavy metals (B3c).

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

4.3. 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 2009 for the EU overall, and by the vast majority of the Member States (Table 9). Percentage of targeted samples taken in each Member State for the reported production of pigs is presented in Table 10.

The distribution of samples analysed, non-compliant samples and non-compliant results in pigs and the number of Member States reporting non-compliant results is presented in Table 11. From the 138 137 samples analysed in this category 301 (0.22 %) were non-compliant (322 non-compliant results). The non-compliant samples were reported by 22 Member States.

Table 9: Production of pigs and number of targeted samples over 2007-2009.

Year	Production (animals)	Targeted samples	% Animals tested[(a)]	Minimum 96/23/EC
2007 (EU 27)	241 501 638	144 378	0.06	
2008 (EU 27)	244 965 996	137 281	0.06	0.05
2009 (EU 27)	242 260 526	138 137	0.06	

(a): in relation to the production of the previous year.

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

Country	Production 2008 (animals)	Samples 2009 (n)	% Animals tested
AT	5 381 409	3 083	0.06
BE	11 486 000	6 172	0.05
BG	601 056	563	0.09
CY	719 634	4 142	0.58
CZ	3 804 479	1 905	0.05
DE	54 478 549	27 753	0.05
DK	21 073 983	11 484	0.05
EE	452 239	1 129	0.25
ES	40 000 052	19 515	0.05
FI	2 429 963	1 301	0.05
FR	25 248 593	12 646	0.05
GR	1 886 679	1 309	0.07
HU	4 575 737	2 766	0.06
IE	2 556 527	6 287	0.25
IT	13 595 605	7 563	0.06
LT	694 827	651	0.09
LU	141 357	76	0.05
LV	504 680	234	0.05
MT	102 104	77	0.08
NL	14 400 000	9 141	0.06
PL	20 001 829	10 465	0.05
PT	4 523 875	2 439	0.05
RO	2 862 323	398	0.01
SE	3 034 034	1 614	0.05
SI	384 400	205	0.05
SK	1 202 846	616	0.05
UK	8 823 216	4 603	0.05
Total	244 965 996	138 137	
Min			0.01
Max			0.58
Median			0.05

There were no non-compliant samples for the group A1. In the group A2, three Member States reported a total of 29 non-compliant samples, all for thiouracil. In the group A3, six Member States reported 35 non-compliant samples (36 non-compliant results) of which 33 for nandrolone. No non-compliant samples were reported for the substances in groups A4 and A5. Prohibited substances (A6)

were found by eight Member States in 18 samples of which ten samples were non-compliant for chloramphenicol.

For antibacterials (B1), 17 Member States reported a total of 109 non-compliant samples (117 non-compliant results). The most frequent substances reported were: oxytetracycline (n = 18), doxycycline (n = 17), sulfadiazine (n = 16) and sulfadimethoxine (n = 15).

In the group B2, five Member States reported 13 non-compliant samples (15 non-compliant results). They were distributed as follows: eight for anthelmintics (B2a), one for pyrethroids (B2c) and six for corticosteroids (B2f). There were no non-compliant samples for the groups B2b, B2d and B2e.

In the group B3, there were 116 non-compliant samples (126 non-compliant results). The non-compliant results were distributed as follows: eleven for organochlorine compounds (B3a), 106 for heavy metals (B3c) and nine for ochratoxin A (B3d).

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

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

Substance group [(a)]	Samples analysed		Non-compliant samples		Non-compliant results	MS reporting non-compliant results
	n	%	n	%	n	n
Total	138 137	100.0	301	0.22	322	22
A	52 281	37.8	64	0.12	65	12
A1	6 623	4.8	0	0.00	0	0
A2	3 107	2.2	11	0.35	11	3
A3	11 562	8.4	35	0.30	36	6
A4	6 237	4.5	0	0.00	0	0
A5	12 064	8.7	0	0.00	0	0
A6	21 000	15.2	18	0.09	18	8
B	92 823	67.2	237	0.26	257	18
B1	50 862	36.8	109	0.21	116	17
B2	31 477	22.8	13	0.04	15	5
B2a	7 649	5.5	8	0.10	8	2
B2b	5 724	4.1	0	0.00	0	0
B2c	2 523	1.8	1	0.04	1	1
B2d	7 343	5.3	0	0.00	0	0
B2e	3 857	2.8	0	0.00	0	0
B2f	4 398	3.2	4	0.09	6	3
B3	11 151	8.1	116	1.04	126	8
B3a	4 285	3.1	3	0.07	11	2
B3b	2 369	1.7	0	0.00	0	0
B3c	4 273	3.1	104	2.43	106	4
B3d	2 039	1.5	9	0.44	9	3
B3e	0	0.0	0	0.00	0	0
B3f	1 266	0.9	0	0.00	0	0

(a): as detailed in Annex C.

4.4. 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 animals slaughtered the previous year. The minimum requirements for the number of samples were fulfilled in 2009 for the EU overall (Table 12), and by the vast majority of the Member States (Table 13). Bulgaria and Romania did not achieve the minimum sampling frequency for sheep and goats.

Table 12: Production of sheep and goats and number of targeted samples over 2007-2009.

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	0.05
2009 (EU 27)	39 584 954	26 265	0.06	

(a): in relation to the production of the previous year.

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

Country	Production 2008 (animals)	Samples 2009 (n)	% Animals tested
AT	120 280	424	0.35
BE	153 000	246	0.16
BG	686 133	304	0.04
CY	314 838	1 448	0.46
CZ	15 712	64	0.41
DE	1 109 599	550	0.05
DK	91 238	59	0.06
EE	6 191	3	0.05
ES	10 162 023	7 203	0.07
FI	34 481	28	0.08
FR	5 331 815	2 676	0.05
GR	1 360 062	815	0.06
HU	15 060	83	0.55
IE	2 673 152	2 029	0.08
IT	676 068	839	0.12
LT	6 118	20	0.33
LU	3 579	15	0.42
LV	8 978	20	0.22
MT	228	12	5.26
NL	876 000	529	0.06
PL	21 388	100	0.47
PT	760 053	461	0.06
RO	634 906	67	0.01
SE	227 383	139	0.06
SI	11 113	32	0.29
SK	142 846	97	0.07
UK	15 993 024	8 002	0.05
Total	41 435 268	26 265	
Min			0.01
Max			5.26
Median			0.08

The distribution of samples analysed, non-compliant samples and non-compliant results in sheep and goats and the number of Member States reporting non-compliant results is presented in Table 14.

Of the 26 265 samples analysed in this category 121 (0.46 %) were non-compliant (126 non-compliant results). The non-compliant samples were reported by eleven Member States. There were no non-compliant samples for the group A1. In the group A2, two Member States reported eight non-compliant samples, all for thiouracil. In the group A3, three Member States reported 43 non-compliant samples (43 non-compliant results) of which 40 were reported by the United Kingdom: twelve for boldenone-alpha and 28 for nandrolone. Farm investigations were carried out in the United Kingdom for boldenone-alpha and no evidence of abuse was found. The cause was likely to be due to faecal contaminantion. No follow up investigations were undertaken in the United Kingdom into the cause of nandrolone residues as past investigations suggest that it can occur naturally in sheep at low concentrations.

Only one non-compliant sample was reported for A4 (alpha-zeralanol) and no non-compliant samples were reported for A5. There were seven non-compliant samples for prohibited substances (A6): one for chloramphenicol, two for ronidazole, and four for semicarbazide.

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

Substance group [(a)]	Samples analysed		Non-compliant samples		Non-compliant results	MS reporting non-compliant results
	n	%	n	%	n	n
Total	26 265	100.0	121	0.46	126	11
A	5 606	21.3	59	1.07	59	6
A1	559	2.1	0	0.00	0	0
A2	280	1.1	8	2.86	8	2
A3	1 177	4.5	43	3.65	43	3
A4	560	2.1	1	0.18	1	1
A5	1 590	6.1	0	0.00	0	0
A6	2 078	7.9	7	0.34	7	3
B	21 144	80.5	62	0.29	67	10
B1	11 164	42.5	28	0.25	32	5
B2	6 904	26.3	10	0.14	10	4
B2a	3 239	12.3	9	0.28	9	3
B2b	853	3.2	0	0.00	0	0
B2c	1 135	4.3	0	0.00	0	0
B2d	579	2.2	0	0.00	0	0
B2e	490	1.9	1	0.20	1	1
B2f	621	2.4	0	0.00	0	0
B3	3 108	11.8	24	0.77	25	7
B3a	1 065	4.1	0	0.00	0	0
B3b	1 094	4.2	2	0.18	2	2
B3c	1 010	3.8	21	2.08	22	6
B3d	252	1.0	1	0.40	1	1
B3e	0	0.0	0	0.00	0	0
B3f	68	0.3	0	0.00	0	0

(a): as detailed in Annex C.

For antibacterials (B1), five Member States reported a total of 28 non-compliant samples (32 non-compliant results). The most frequent substances reported were: sulfadiazine (n = 13), chlortetracycline (n = 6), and oxytetracycline (n = 5).

In the group B2, four Member States reported 10 non-compliant samples (10 non-compliant results): nine for anthelmintics (B2a), and one for Diclofen (B2e). There were no non-compliant samples for the groups B2b, B2c, and B2d.

In the group B3, there were 24 non-compliant samples (25 non-compliant results). The non-compliant results were distributed as follows: two for organophosphorus compounds (B3b), 22 for heavy metals (B3c) and one for aflatoxin B1 (B3d).

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

4.5. 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. In 2009 the number of samples taken for horses was 15 % higher compared to the previous year. Percentage of targeted samples taken in 2009 at EU level was similar to previous year (Table 15). Percentage of targeted samples taken in each Member State for the reported horse production is presented in Table 16. Estonia, Greece, and Luxembourg did not report horse production and thus no samples have been taken.

Table 15: Production of horses and number of targeted samples over 2007-2009.

Year	Production (animals)	Targeted samples	% Animals tested[(a)]	Minimum 96/23/EC
2007 (EU 27)	312 969	3 115	1.16	
2008 (EU 27)	386 302	2 545	0.81	Not specified
2009 (EU 27)	264 538	3 000	0.78	

(a): reported to the production of the previous year.

The distribution of samples analysed, non-compliant samples and non-compliant results in horses and the number of Member States reporting non-compliant results is presented in Table 16.

Of the 3 000 samples analysed in this category 39 samples (1.3 %) were non-compliant (41 non-compliant results). The non-compliant samples were reported by twelve Member States. In the group A, there were only two non-compliant samples (three non-compliant results) for steroids (A3). No non-compliant samples were reported for the groups A1, A2, A4, A5, and A6.

For antibacterials (B1), two Member States reported one non-compliant sample each.

In the group B2, two non-compliant samples were reported for non-steroidal anti-inflammatory drugs (B2e). There were no non-compliant samples for substances in the groups B2a, B2b, B2c, B2d, and B2f.

In the group B3, there were 33 non-compliant samples (34 non-compliant results) all for heavy metals (B3c): 28 for cadmium, and six 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 Annex I.

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

Country	Production 2008 (animals)	Samples 2009 (n)	% Animals tested
AT	903	84	9.30
BE	12 000	367	3.06
BG	1 139	68	5.97
CY	6 800	0	0.00
CZ	283	19	6.71
DE	9 125	96	1.05
DK	2 627	38	1.45
EE	0	0	0.00
ES	26 696	242	0.91
FI	975	32	3.28
FR	17 744	498	2.81
GR	0	0	0.00
HU	36	7	19.4
IE	1 678	218	12.9
IT	99 971	448	0.45
LT	1 923	25	1.30
LU	0	0	0.00
LV	424	16	3.77
MT	158	15	9.49
NL	1 980	138	6.97
PL	35 605	375	1.05
PT	1 248	56	4.49
RO	156 320	27	0.02
SE	3 423	135	3.94
SI	1 477	33	2.23
SK	11	13	118
UK	3 756	50	1.33
Total	386 302	3 000	
Min			0
Max			118.18
Median			0.78

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

Substance group [(a)]	Samples analysed		Non-compliant samples		Non-compliant results	MS reporting non-compliant results
	n	%	n	%	n	n
Total	3000	100.0	39	1.30	41	12
A	642	21.4	2	0.31	3	2
A1	82	2.7	0	0.00	0	0
A2	48	1.6	0	0.00	0	0
A3	158	5.3	2	1.27	3	2
A4	89	3.0	0	0.00	0	0
A5	149	5.0	0	0.00	0	0
A6	159	5.3	0	0.00	0	0
B	2370	79.0	37	1.56	38	10
B1	570	19.0	2	0.35	2	2
B2	823	27.4	2	0.24	2	2
B2a	242	8.1	0	0.00	0	0
B2b	41	1.4	0	0.00	0	0
B2c	73	2.4	0	0.00	0	0
B2d	97	3.2	0	0.00	0	0
B2e	332	11.1	2	0.60	2	2
B2f	111	3.7	0	0.00	0	0
B3	917	30.6	33	3.60	34	9
B3a	135	4.5	0	0.00	0	0
B3b	83	2.8	0	0.00	0	0
B3c	668	22.3	33	4.94	34	9
B3d	56	1.9	0	0.00	0	0
B3e	0	0.0	0	0.00	0	0
B3f	11	0.4	0	0.00	0	0

(a): as detailed in Annex C.

4.6. 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 total poultry production in 2009 decreased by 9 % compared to 2008, whereas the total number of samples analysed increased by 3 %. The minimum requirement of one sample/200 t was achieved for the EU overall (Table 18).

Table 18: Production of poultry and number of targeted samples over 2007-2009.

Year	Production (t)	Targeted samples	Samples tested/200 t [(a)]	Minimum 96/23/EC
2007 (EU 27)	10 912 500	62 101	1.15	
2008 (EU 27)	12 421 566	60 406	1.11	1/200 t
2009 (EU 27)	11 383 434	61 989	1.00	

(a): related to the production of the previous year.

Percentage of targeted samples taken in each Member State for the reported production of poultry is given in Table 19. Member States which did not achieve this requirement were Greece, Italy, and

Romania. Luxembourg did not report poultry production for 2008 and in consequence no samples were taken in 2009.

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

Country	Production 2008 (t)	Samples 2009 (n)	Samples/200 t
AT	91 925	797	1.7
BE	352 400	2296	1.3
BG	69 000	600	1.7
CY	5 700	1051	36.9
CZ	187 830	1 012	1.1
DE	1 183 354	7 221	1.2
DK	143 916	811	1.1
EE	10 380	200	3.9
ES	1 261 544	6 742	1.1
FI	93 216	563	1.2
FR	1 716 544	8 440	1.0
GR	169 083	719	0.9
HU	501 424	3 524	1.4
IE	139 793	1 323	1.9
IT	1 123 000	4 316	0.8
LT	38 200	201	1.1
LU	0	0	0.0
LV	20 550	180	1.8
MT	4 710	181	7.7
NL	738 000	4 565	1.2
PL	1 123 680	5 896	1.0
PT	270 883	1 697	1.3
RO	1 491 895	958	0.1
SE	115 893	583	1.0
SI	56 766	386	1.4
SK	84 310	565	1.3
UK	1 427 570	7 162	1.0
Total	12 421 566	61 989	
Min			0.0
Max			36.8
Median			1.2

The distribution of samples analysed, non-compliant samples and non-compliant results in poultry and the number of Member States reporting non-compliant results is presented in Table 20.

Of the 61 989 samples analysed in this category 185 (0.3 %) were non-compliant (188 non-compliant results). The non-compliant samples were reported by 15 Member States. Only one non-compliant sample was reported in the group A3 and none in the groups A1, A2, A4, and A5. Prohibited substances (A6) were reported by five Member States: chloramphenicol (n = 9), 3-amino-2-oxazolidone (n = 2), and semicarbazide (n = 1).

For antibacterials (B1), nine Member States reported a total of 32 non-compliant samples (35 non-compliant results). The most frequent substances reported were: doxycycline (n = 12), enrofloxacin (n = 8), and oxytetracycline (n = 5).

In the group B2, by far the highest number of non-compliant samples reported was for anticoccidials (B2b): 131 samples (2.05 %) from eleven Member States. Other non-compliant results reported in the group B2 were for non-steroidal anti-inflammatory drugs (B2e) (n = 3) and olaquindox (B2f) (n = 1). No non-compliant samples were reported in the groups B2a, B2c and B2d.

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

Substance group [(a)]	Samples analysed		Non-compliant samples		Non-compliant results	MS reporting non-compliant results
	n	%	n	%	n	n
Total	61 989	100.0	185	0.30	188	15
A	30 053	48.5	13	0.05	13	6
A1	3 289	5.3	0	0.00	0	0
A2	951	1.5	0	0.00	0	0
A3	4 038	6.5	1	0.05	1	1
A4	3 307	5.3	0	0.00	0	0
A5	5 502	8.9	0	0.00	0	0
A6	15 995	25.8	12	0.08	12	5
B	34 608	55.8	172	0.50	173	15
B1	17 942	28.9	32	0.18	35	9
B2	12 093	19.5	135	1.12	135	11
B2a	2 989	4.8	0	0.00	0	0
B2b	6 390	10.3	131	2.05	131	11
B2c	1 561	2.5	0	0.00	0	0
B2d	14	0.02	0	0.00	0	0
B2e	655	1.1	3	0.46	3	2
B2f	505	0.8	1	0.20	1	1
B3	5 058	8.2	5	0.10	5	5
B3a	2 559	4.1	3	0.12	3	3
B3b	279	0.5	0	0.00	0	0
B3c	1 834	3.0	2	0.11	2	2
B3d	720	1.2	0	0.00	0	0
B3e	0	0.0	0	0.00	0	0
B3f	427	0.7	0	0.00	0	0

(a): as detailed in Annex C.

In the group B3, there were three non-compliant samples for organochlorine compounds and dioxins (B3a) and two samples for heavy metals (B3c).

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

4.7. Aquaculture

Directive 96/23/EC specifies that the minimum number of samples to be collected each year must be at least one per 100 t of annual production. The minimum requirements for the number of samples to be taken were fulfilled in 2009 for the EU overall (Table 21), and by the vast majority of Member States. The production volume and the number of samples analysed in each Member State are given in Table 22. Greece, Malta and Romania did not analyse at least one sample/100 t of production. Luxembourg did not report aquaculture production and consequently no samples were taken.

The distribution of samples analysed, non-compliant samples and non-compliant results in aquaculture and the number of Member States reporting non-compliant results is presented in Table 23.

For antibacterials (B1), only one Member State reported nine non-compliant samples found by applying inhibitor tests.

Table 21: Production of aquaculture and number of targeted samples over 2007-2009.

Year	Production (t)	Targeted samples	Samples tested/[(a)]	Minimum 96/23/EC
2007 (EU 27)	602 555	9 257	1.53	
2008 (EU 27)	644 875	8 751	1.45	1/100 t
2009 (EU 27)	627 109	8 606	1.33	

(a): related to the production of the previous year.

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

Country	Production 2008 (t)	Samples 2009 (n)	Samples/100 t
AT	2 531	183	7.2
BE	3 000	177	5.9
BG	3 534	475	13.4
CY	3 572	373	10.4
CZ	20 400	336	1.6
DE	37 603	544	1.4
DK	36 000	367	1.0
EE	488	15	3.1
ES	49 801	488	1.0
FI	13 031	161	1.2
FR	46 982	1 015	2.2
GR	100 000	736	0.7
HU	10 174	149	1.5
IE	11 899	144	1.2
IT	64 100	627	1.0
LT	3 008	42	1.4
LU	0	0	-
LV	734	11	1.5
MT	2 900	0	0.0
NL	13 000	162	1.2
PL	36 000	621	1.7
PT	4 387	85	1.9
RO	9 433	30	0.3
SE	9 500	106	1.1
SI	1 354	38	2.8
SK	2 979	99	3.3
UK	158 465	1 622	1.0
Total	644 875	8 606	
Min			0.0
Max			13.4
Median			1.4

Of the 8 606 samples analysed for aquaculture 55 samples (0.64 %) were non-compliant (61 non-compliant results). The non-compliant samples were reported by eleven Member States. In the group A, there were only two non-compliant samples for steroids (A3). There were no non-compliant samples for the groups A1, A2, A4, A5, and A6.

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

Substance group [(a)]	Samples analysed		Non-compliant samples		Non-compliant results	MS reporting non-compliant results
	n	%	n	%	n	n
Total	8606	100.0	55	0.64	61	11
A	2424	28.2	2	0.08	2	2
A1	289	3.4	0	0.00	0	0
A2	0	0.0	0	0.00	0	0
A3	434	5.0	2	0.46	2	2
A4	118	1.4	0	0.00	0	0
A5	86	1.0	0	0.00	0	0
A6	1645	19.1	0	0.00	0	0
B	6458	75.0	53	0.82	59	10
B1	1860	21.6	9	0.48	9	1
B2	980	11.4	3	0.31	3	1
B2a	765	8.9	3	0.39	3	1
B2b	34	0.4	0	0.00	0	0
B2c	275	3.2	0	0.00	0	0
B2d	0	0.0	0	0.00	0	0
B2e	0	0.0	0	0.00	0	0
B2f	103	1.2	0	0.00	0	0
B3	3911	45.4	41	1.05	47	9
B3a	829	9.6	3	0.36	3	2
B3b	108	1.3	0	0.00	0	0
B3c	747	8.7	3	0.40	4	2
B3d	215	2.5	0	0.00	0	0
B3e	2119	24.6	34	1.60	40	7
B3f	222	2.6	0	0.00	0	0

(a): as detailed in Annex C.

In the group B2, only one non-compliant sample for emamectin-B1a was reported. There were no non-compliant samples for the groups B2b, B2c, and B2f. No monitoring is required for substances in the groups B2d (sedatives) and B2e (non-steroidal anti-inflammatory drugs) (Annex II of the Council Directive 96/23/EC) and thus no samples were analysed for these residue groups.

In the group B3, 41 non-compliant samples proved to be non-compliant (47 non-compliant results). The non-compliant results were distributed as follows: 40 for malachite green and leuco-malachite green (B3d), four for heavy metals (B3c), and three for organochlorine compounds and dioxins (B3a). It is evident that with 1.6 % non-compliant samples in group B3e, residues of malachite green are the residues most frequently found in aquaculture.

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

4.8. Milk

Commission Decision 97/747/EC lays down that the annual number of samples taken should be one per 15 000 t of annual milk production, with a minimum of 300 samples. The minimum requirements for the number of samples to be taken were fulfilled in 2009 for the EU overall (Table 24). The only country which did not fulfil this requirement was RO (Table 25).

Table 24: Production of milk and number of targeted samples over 2007-2009.

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	1/15 000 t
2009 (EU 27)	141 669 974	54 063	5.6	

(a): related to the production of the previous year.

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

Country	Production 2008 (t)	Samples 2009 (n)	Samples/15000 t
AT	3 179 995	340	1.6
BE	2 849 230	934	4.9
BG	522 511	1 242	35.7
CY	150 000	26 434	2 643.4[a]
CZ	2 812 000	499	2.7
DE	27 426 427	1 883	1.0
DK	4 500 000	954	3.2
EE	692 416	1 288	27.9
ES	6 817 820	1 291	2.8
FI	2 243 000	298	2.0
FR	24 526 597	1 851	1.1
GR	1 889 712	770	6.1
HU	1 335 107	561	6.3
IE	5 388 488	1 289	3.6
IT	11 085 537	2 184	3.0
LT	1 701 674	1 173	10.3
LU	275 000	302	16.5
LV	841 600	712	12.7
MT	43 162	310	107.7
NL	10 935 800	1 294	1.8
PL	11 981 000	2 443	3.1
PT	2 103 673	1 128	8.0
RO	3 041 639	111	0.5
SE	2 951 000	981	5.0
SI	458 372	362	11.8
SK	1 074 655	477	6.7
UK	14 179 758	2 952	3.1
Total	145 006 173	54 063	
Min			0.5
Max			2 643
Median			4.9

(a): includes inhibitor tests

The distribution of samples analysed, non-compliant samples and non-compliant results in milk and the number of Member States reporting non-compliant results is presented in Table 26.

Of the 54 063 milk samples analysed 82 (0.15 %) were non-compliant (82 non-compliant results). The non-compliant samples were reported by 16 Member States. In the group A, there were only three non-compliant samples for chloramphenicol (A6). According to Annex II of the Council Directive 96/23/EC there is no requirement for residue monitoring of the substances in groups A1, A2, A3, A4, and A5 in milk.

For antibacterials (B1), nine Member States reported a total of 50 non-compliant samples (50 non-compliant results) of which 34 were found by applying inhibitor tests, seven for "antibacterials" and thus no information on the substances causing the non-compliance was available. Nine samples were non-compliant for amoxicillin, benzylpenicillin, cloxacilin, sulfadimidine, or tetracycline.

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

Substance group [(a)]	Samples analysed		Non-compliant samples		Non-compliant results	MS reporting non-compliant results
	n	%	n	%	n	n
Total	54 063	100.0	82	0.15	82	16
A	6 437	11.9	3	0.05	3	3
A1	1	0.0	0	0.00	0	0
A2	0	0.0	0	0.00	0	0
A3	72	0.1	0	0.00	0	0
A4	0	0.0	0	0.00	0	0
A5	24	0.0	0	0.00	0	0
A6	6 459	11.9	3	0.05	3	3
B	50 292	93.0	79	0.16	79	14
B1	38 952	72.0	50	0.13	50	9
B2	7 489	13.9	16	0.21	16	7
B2a	5 073	9.4	15	0.30	15	4
B2b	351	0.6	0	0.00	0	0
B2c	257	0.5	0	0.00	0	0
B2d	0	0.0	0	0.00	0	0
B2e	3 370	6.2	1	0.03	1	1
B2f	394	0.7	0	0.00	0	0
B3	5 805	10.7	13	0.22	13	4
B3a	1 612	3.0	2	0.12	2	1
B3b	910	1.7	1	0.11	1	1
B3c	1 008	1.9	5	0.50	5	3
B3d	2 376	4.4	5	0.21	5	2
B3e	0	0.0	0	0.00	0	0
B3f	306	0.6	0	0.00	0	0

(a): as detailed in Annex C.

In the group B2, there were 15 non-compliant samples (15 non-compliant results) for anthelmintics (B2a) and one for non-steroidal anti-inflammatory drugs (B2e). In the group B3, there were 13 non-compliant samples (13 non-compliant results) distributed as follows: five for aflatoxin M1 (B3d), five for heavy metals (B3c), two for dioxins (B3c), and one for organophosphorus compounds (B3b).

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

4.9. Eggs

The number of samples to be taken each year must be at least equal to one per 1000 t of annual egg production, with a minimum of 200 samples. This requirement was fulfilled at the EU level (Table 27) and by the majority of the Member States except Romania (Table 28).

Table 27: Production of eggs and number of targeted samples over 2007-2009.

Year	Production (t)	Targeted samples	Samples tested/1000 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	1/1000 t
2009 (EU 27)	6 137 732	13 031	2.2	

(a): related to the production of the previous year.

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

Country	Production 2008 (t)	Samples 2009 (n)	Samples/1000 t
AT	95 197	220	2.3
BE	125 754	431	3.4
BG	45 016	697	15.5
CY	7 917	253	32.0
CZ	117 820	292	2.5
DE	731 300	815	1.1
DK	53 173	491	9.2
EE	9 926	200	20.1
ES	850 148	872	1.0
FI	57 000	200	3.5
FR	916 585	998	1.1
GR	113 081	143	1.3
HU	53 432	385	7.2
IE	34 023	274	8.1
IT	808 670	916	1.1
LT	40 130	202	5.0
LU	1 200	98	81.7
LV	37 822	473	12.5
MT	7 986	200	25.0
NL	571 000	1 672	2.9
PL	459 500	660	1.4
PT	101 542	610	6.0
RO	71 007	56	0.8
SE	95 404	200	2.1
SI	22 568	207	9.2
SK	72 305	211	2.9
UK	521 970	1 255	2.4
Total	6 021 476	13 031	
Min			0.8
Max			81.7
Median			3.4

The distribution of samples analysed, non-compliant samples and non-compliant results in eggs and the number of Member States reporting non-compliant results is presented in Table 29.

Of the 13 031 egg samples analysed 50 (0.38 %) were non-compliant (53 non-compliant results). The non-compliant samples were reported by 14 Member States.

Directive 96/23/EC, Annex II requires Member States to monitor in the group A only the residues of the prohibited substances (A6). Although 3 564 samples were analysed for this group no non-compliant sample was reported.

In the group B, 42 non-compliant samples were found (43 non-compliant results) for anticoccidials (B2b) representing 1.19 % of the total samples analysed for this substance group. Other six non-compliant samples (nine non-compliant results) were reported for organochlorine compounds and dioxins (B3c).

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

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

Substance group [(a)]	Samples analysed		Non-compliant samples		Non-compliant results	MS reporting non-compliant results
	n	%	n	%	n	n
Total	13 031	100.0	50	0.38	53	14
A	3 564	27.4	0	0.00	0	0
A1	0	0.0	0	0.00	0	0
A2	0	0.0	0	0.00	0	0
A3	0	0.0	0	0.00	0	0
A4	0	0.0	0	0.00	0	0
A5	0	0.0	0	0.00	0	0
A6	3 564	27.4	0	0.00	0	0
B	10 210	78.4	50	0.49	53	14
B1	4 604	35.3	1	0.02	1	1
B2	4 136	31.7	43	1.04	43	13
B2a	441	3.4	0	0.00	0	0
B2b	3 530	27.1	43	1.19	43	13
B2c	196	1.5	0	0.00	0	0
B2d	0	0.0	0	0.00	0	0
B2e	1	0.0	0	0.00	0	0
B2f	1	0.0	0	0.00	0	0
B3	2 394	18.4	6	0.25	9	3
B3a	1 818	14.0	6	0.33	9	3
B3b	188	1.4	0	0.00	0	0
B3c	159	1.2	0	0.00	0	0
B3d	0	0.0	0	0.00	0	0
B3e	0	0.0	0	0.00	0	0
B3f	475	3.6	0	0.00	0	0

(a): as detailed in Annex C.

4.10. Rabbit meat

The number of samples to be taken each year must be equal to ten per 300 t of annual production (dead weight) for the first 3 000 t, plus one sample for each additional 300 t. 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 the Commission Decision 97/147/EC, was calculated.

Table 30: Production of rabbit meat and number of targeted samples over 2007-2009.

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

(a): related to the production of the previous year.

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 3000 t

Total samples required = {(10/300x3000) + [(Production reported in tonnes -3000) x (1/300)]}

b) For countries with production below 3000 t

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

Countries with a rate equal to one or above completely fulfilled the requirements for sampling frequency. Countries with a value below one did not.

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

Country	Production 2008 (t)	Samples 2009 (n)	Samples collected/ sample required
AT	0	0	-
BE	5 000	153	1.4
BG	12	96	240.0
CY	87	271	93.4
CZ	1 892	65	1.0
DE	359	23	1.9
DK	0	0	-
EE	0	0	-
ES	61 124	1 171	4.0
FI	0	0	-
FR	53 862	820	3.0
GR	960	169	5.3
HU	8 583	151	1.3
IE	0	0	-
IT	43 452	276	1.2
LT	31	20	19.4
LU	8	17	63.8
LV	15	21	42.0
MT	70	21	9.0
NL	30	15	15.0
PL	2 340	137	1.8
PT	8 055	134	1.1
RO	103	0	0.0
SE	0	0	-
SI	39	26	20.0
SK	1 367	105	2.3
UK	0	0	-
Total	187 389	3 691	
Min			0.0
Max			240.0
Median			3.5

Production volume and number of targeted samples broken down by Member States are presented in Table 31. Only Romania did not achieve the minimum sampling frequency requirement. Austria, Denmark, Estonia, Finland, the United Kingdom, Ireland and Sweden reported no rabbit meat production in 2008 and in consequence no rabbit samples have been taken in 2009.

The distribution of samples analysed, non-compliant samples and non-compliant results in rabbit meat and the number of Member States reporting non-compliant results is presented in Table 32.

Out of the 3 691 samples analysed for rabbits, 23 (0.62 %) were non-compliant (24 non-compliant results). The non-compliant samples were reported by 7 Member States.

No non-compliant samples were reported for any substance of the group A.

In the group B, there were twelve non-compliant results for anticoccidials (B2b), ten for antibacterials (B1), one for non-steroidal anti-inflammatory drugs (B2e), and one for heavy metals (B3c).

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

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

Substance group [(a)]	Samples analysed		Non-compliant samples		Non-compliant results	MS reporting non-compliant results
	n	%	n	%	n	n
Total	3 691	100.0	23	0.62	24	7
A	1 176	31.9	0	0.00	0	0
A1	104	2.8	0	0.00	0	0
A2	45	1.2	0	0.00	0	0
A3	128	3.5	0	0.00	0	0
A4	98	2.7	0	0.00	0	0
A5	140	3.8	0	0.00	0	0
A6	747	20.2	0	0.00	0	0
B	2 520	68.3	23	0.91	24	7
B1	1 430	38.7	9	0.63	10	3
B2	643	17.4	13	2.02	13	4
B2a	167	4.5	0	0.00	0	0
B2b	270	7.3	12	4.44	12	3
B2c	84	2.3	0	0.00	0	0
B2d	3	0.1	0	0.00	0	0
B2e	72	2.0	1	1.39	1	1
B2f	47	1.3	0	0.00	0	0
B3	452	12.2	1	0.22	1	1
B3a	208	5.6	0	0.00	0	0
B3b	22	0.6	0	0.00	0	0
B3c	208	5.6	1	0.48	1	1
B3d	43	1.2	0	0.00	0	0
B3e	0	0.0	0	0.00	0	0
B3f	15	0.4	0	0.00	0	0

(a): as detailed in Annex C.

4.11. Farmed game

European Commission Decision 97/747/EC requires 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 1 975 targeted samples were collected in 2009 in the EU (1 959 in 2008) (Table 33). Estonia, Luxembourg, Malta, Poland, Slovenia, and the Slovak Republic did not report farmed game production in 2008 (Table 34).

Table 33: Production of farmed game and number of targeted samples over 2007-2009.

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

(a): related to the production of the previous year.

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

Country	Production 2008 (t)	Samples 2009 (n)
AT	168	108
BE	1300	152
BG	8	205
CY	17	17
CZ	41	110
DE	2 158	91
DK	57	66
EE	0	0
ES	2 531	140
FI	2 097	110
FR	399	209
GR	140	101
HU	430	71
IE	38	122
IT	3 981	79
LT	28	21
LU	0	0
LV	129	12
MT	0	0
NL	20	139
PL	0	0
PT	1 229	28
RO	26	3
SE	1 778	66
SI	0	0
SK	0	14
UK	1 910	111
Total	18 485	1 975

The distribution of samples analysed, non-compliant samples and non-compliant results in farmed game and the number of Member States reporting non-compliant results is presented in Table 35.

Out of the 1 975 samples analysed for farmed game, 18 (0.91 %) were non-compliant (18 non-compliant results). The non-compliant samples were reported by 6 Member States.

There was only one non-compliant sample in the group A. In the group B, there were 15 non-compliant samples for heavy metals (B3c), one for antibacterials (B1), and one for anticoccidials (B2b).

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

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

Substance group [(a)]	Samples analysed		Non-compliant samples		Non-compliant results	MS reporting non-compliant results
	n	%	n	%	n	n
Total	1 975	100.0	18	0.91	18	6
A	536	27.1	1	0.19	1	1
A1	63	3.2	0	0.00	0	0
A2	42	2.1	0	0.00	0	0
A3	72	3.6	0	0.00	0	0
A4	59	3.0	0	0.00	0	0
A5	133	6.7	0	0.00	0	0
A6	203	10.3	1	0.49	1	1
B	1 528	77.4	17	1.11	17	5
B1	472	23.9	1	0.21	1	1
B2	597	30.2	1	0.17	1	1
B2a	250	12.7	0	0.00	0	0
B2b	185	9.4	1	0.54	1	1
B2c	93	4.7	0	0.00	0	0
B2d	6	0.3	0	0.00	0	0
B2e	59	3.0	0	0.00	0	0
B2f	4	0.2	0	0.00	0	0
B3	478	24.2	15	3.14	15	3
B3a	164	8.3	0	0.00	0	0
B3b	29	1.5	0	0.00	0	0
B3c	262	13.3	15	5.73	15	3
B3d	37	1.9	0	0.00	0	0
B3e	0	0.0	0	0.00	0	0
B3f	48	2.4	0	0.00	0	0

(a): as detailed in Annex C.

4.12. Wild game

European Commission Decision 97/747/EC requires 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 2 488 targeted samples were collected in 2009 in the EU (2 443 in 2008) (Table 36). Cyprus, Latvia, Malta, and Sweden did not report wild game production in 2008 (Table 37).

Table 36: Production of wild game and number of targeted samples over 2007-2009.

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

(a): related to the production of the previous year.

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

Country	Production 2008 (t)	Samples 2009 (n)
AT	9 254	162
BE	2 010	115
BG	0	174
CY	0	0
CZ	8 071	165
DE	19 071	134
DK	223	73
EE	355	100
ES	9 477	113
FI	108	88
FR	31 107	88
GR	100	5
HU	203 766	93
IE	153	102
IT	3 350	91
LT	236	19
LU	360	100
LV	0	99
MT	0	0
NL	172	106
PL	24 460	208
PT	75	100
RO	623	33
SE	0	0
SI	629	104
SK	2391	101
UK	550	115
Total	316 541	2 488

The distribution of samples analysed, non-compliant samples and non-compliant results in wild game and the number of Member States reporting non-compliant results is presented in Table 38.

Out of the 2 388 samples analysed for wild game, 171 (7.16 %) were non-compliant (180 non-compliant results). The non-compliant samples were reported by 17 Member States. The vast majority of the non-compliant results (n = 166) reported were for heavy metals (B3c). Other non-compliant results have been reported for organochlorine compounds (B3a) (n=13), and pyrethroids (B2c) (n=1).

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

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

Substance group	Samples analysed		Non-compliant samples		Non-compliant results	MS reporting non-compliant results
	n	%	n	%	n	n
Total	2 488	100.0	171	6.87	180	17
A	1	0.0	0	0.00	0	0
A1	0	0.0	0	0.00	0	0
A2	1	0.0	0	0.00	0	0
A3	0	0.0	0	0.00	0	0
A4	0	0.0	0	0.00	0	0
A5	0	0.0	0	0.00	0	0
A6	0	0.0	0	0.00	0	0
B	2 487	100.0	171	6.88	180	17
B1	1	0.0	0	0.00	0	0
B2	79	3.2	0	0.00	1	1
B2a	0	0.0	0	0.00	0	0
B2b	0	0.0	0	0.00	0	0
B2c	79	3.2	1	1.27	1	1
B2d	0	0.0	0	0.00	0	0
B2e	0	0.0	0	0.00	0	0
B2f	0	0.0	0	0.00	0	0
B3	2 457	98.8	171	6.96	179	17
B3a	446	17.9	7	1.57	13	2
B3b	78	3.1	0	0.00	0	0
B3c	1 959	78.7	164	8.37	166	17
B3d	10	0.4	0	0.00	0	0
B3e	0	0.0	0	0.00	0	0
B3f	213	8.6	0	0.00	0	0

4.13. Honey

The number of samples to be taken must be at least 10 per 300 t of annual production for the first 3 000 t, plus one sample for each additional 300 t. In order to check the fulfilment of this requirement the same equations were applied as described in chapter 4.10.

Where the rate between the total targeted samples reported and the number of samples to be collected for the reported production is equal to one or higher, Member States completely fulfilled the requirements for sampling frequency. Member States with a value below 1 did not.

In 2009, 4 826 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. Only Romania and Sweden did not achieve the minimum sampling frequency requirement.

The distribution of samples analysed, non-compliant samples and non-compliant results in honey and the number of Member States reporting non-compliant results is presented in Table 41.

Of the 4 826 samples analysed for honey 30 (0.62 %) were non-compliant (30 non-compliant results). The non-compliant samples were reported by ten Member States. The majority of the non-compliant results (n = 23) reported were for antibacterials (B1). Other non-compliant results were reported for

organochlorine compounds (B3a) (n = 1), heavy metals (B3c) (n = 4), and diethyltoluamide (B3f) (n = 2).

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

Table 39: Production of honey and number of targeted samples over 2007-2009.

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

(a): reported to the production of the previous year.

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

Country	Production 2008 (t)	Samples 2009 (n)	Samples collected/ sample required
AT	6 300	177	1.6
BE	1 600	180	3.4
BG	2 849	229	2.4
CY	200	303	45.5
CZ	6 500	191	1.7
DE	18 517	158	1.0
DK	2 000	79	1.2
EE	756	26	1.0
ES	27 940	636	3.5
FI	1 700	56	1.0
FR	14 167	400	2.9
GR	12 000	218	1.7
HU	9 197	298	2.5
IE	180	100	16.7
IT	10 000	410	3.3
LT	1 000	34	1.0
LU	120	35	8.8
LV	900	32	1.1
MT	15	13	26.0
NL	500	52	3.1
PL	14 000	273	2.0
PT	6 907	118	1.0
RO	9 100	48	0.4
SE	2 764	80	0.9
SI	1 480	78	1.6
SK	4 360	427	4.1
UK	3 642	175	1.7
Total	158 694	4 826	
Min			0.4
Max			45.5
Median			1.7

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

Substance group (a)	Samples analysed		Non-compliant samples		Non-compliant results	MS reporting non-compliant results
	n	%	n	%	n	n
Total	4 826	100.0	30	0.62	30	10
A	628	13.0	0	0.00	0	0
A1	0	0.0	0	0.00	0	0
A2	0	0.0	0	0.00	0	0
A3	0	0.0	0	0.00	0	0
A4	0	0.0	0	0.00	0	0
A5	0	0.0	0	0.00	0	0
A6	628	13.0	0	0.00	0	0
B	4 450	92.2	30	0.67	30	10
B1	2 336	48.4	23	0.98	23	8
B2	896	18.6	0	0.00	0	0
B2a	19	0.4	0	0.00	0	0
B2b	0	0.0	0	0.00	0	0
B2c	663	13.7	0	0.00	0	0
B2d	0	0.0	0	0.00	0	0
B2e	0	0.0	0	0.00	0	0
B2f	393	8.1	0	0.00	0	0
B3	1 618	33.5	7	0.43	7	3
B3a	674	14.0	1	0.15	1	1
B3b	573	11.9	0	0.00	0	0
B3c	611	12.7	4	0.65	4	1
B3d	38	0.8	0	0.00	0	0
B3e	0	0.0	0	0.00	0	0
B3f	125	2.6	2	1.60	2	1

(a): as detailed in Annex C.

4.14. Suspect samples

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 as consequence they are reported separately in the residue database as “suspect samples”, as part of the follow-up measure taken in case of infringements.

In total, 38 119 suspect samples were analysed in 2009 of which 706 (1.85 %) were non-compliant. Additionally, Germany reported 5 026 suspect samples analysed by inhibitor tests where 31 samples were found non-compliant.

An overview on the number of suspect samples analysed for different substance groups and the percentage 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 Annex II.

Table 42: Number of suspect samples analysed, non-compliant samples and non-compliant results in all species and products categories.

Substance group [(a)]	Samples analysed		Non-compliant samples		Non-compliant results
	n	%	n	%	n
Total	38 119	100.0	706	1.85	784
A	7 941	20.8	16	0.20	17
A1	1 288	3.4	0	0.00	0
A2	229	0.6	0	0.00	0
A3	3 505	9.2	16	0.46	17
A4	1 180	3.1	0	0.00	0
A5	1 497	3.9	0	0.00	0
A6	3 595	9.4	0	0.00	0
B	31 088	81.6	690	2.22	767
B1	28 989	76.0	520	1.79	571
B2	1 628	4.3	54	3.32	56
B2a	55	0.1	0	0.00	0
B2b	151	0.4	15	9.93	15
B2c	29	0.1	0	0.00	0
B2d	328	0.9	0	0.00	0
B2e	244	0.6	31	12.70	32
B2f	1 271	3.3	9	0.71	9
B3	756	2.0	125	16.53	140
B3a	219	0.6	29	13.24	35
B3b	18	0.0	0	0.00	0
B3c	144	0.4	27	18.75	27
B3d	103	0.3	14	13.59	14
B3e	247	0.6	48	19.43	57
B3f	31	0.1	7	22.58	7

(a): as detailed in Annex C.

CONCLUSIONS

- The current analysis is based on aggregate data transmitted by the Member States to the European Commission. It does not contain the total number of samples (compliant and non-compliant) tested for each individual substance, and also the description of the individual samples analysed is missing. Consequently, it is not possible to calculate the percentage of specific matrices positive for a specific substance and ascertain whether these vary significantly between successive years. Differences in the number of non-compliant results seen overall, for a group of substances or for an individual substance, could thus be due either to a higher number of tests performed or to a higher non-compliance rate. Also, it was not possible to identify samples non-compliant for several substances.

- Altogether, 764 736 samples were reported in the framework of the 2009 residue monitoring in the EU. A total of 484 087 samples (445 968 targeted samples, 38 119 suspect samples) were reported under Council Directive 96/23/EC. Additionally, Germany reported 280 649 samples for inhibitor tests (275 623 targeted samples, and 5 026 suspect samples).

- The minimum requirements for sampling frequency laid down in Council Directive 96/23/EC and in Commission Decision 97/747/EC were fulfilled in 2009 for the EU overall, and by the vast majority of the individual Member States.

- Of the total targeted samples collected, 40.9 % were analysed for substances having an anabolic effect and prohibited substances (group A) and 63.1% for veterinary drugs and contaminants (group B).

- There were 1 406 non-compliant samples (0.32 %) out of the 445 968 targeted samples. This situation was similar to the one in 2008 (0.34 %) (see footnote No 8, page 3).

- Considering all targeted samples analysed for the category “hormones” (A1 to A5) in all animal/product categories, 0.26 % were non-compliant.

- As in 2008, there were no non-compliant samples for stilbenes and derivatives (A1).

- For antithyroid agents (A2), there were 0.46 % non-compliant samples, all for thiouracil, which was most likely caused by feeding cruciferous plants.

- In the group of steroids (A3), which includes some results on corticosteroids, there were 0.39 % non-compliant samples in all animal and product categories. The non-compliant samples were found in bovines (0.34 %), pigs (0.30 %), sheep and goats (3.65 %), horses (1.27 %), poultry (0.05 %), and aquaculture (0.46 %). The most frequently identified anabolic steroids were alpha-boldenone (n = 65), nandrolone (n = 64) and epinandrolone (n = 17). However, several Member States claimed that residues of boldenone-alpha and epinandrolone (19-norepitestosterone) were more likely of endogenous origin. Non-compliant samples for corticosteroids were reported in group A3 (n = 27) and in group B2f (n = 27). The majority of incidences of non-compliance were reported in bovines (n = 48). Substances identified were dexamethasone (n = 43), prednisolone (n = 16), and prednisone (n = 5).

- In the group of resorcylic acid lactones (A4), 0.17 % of the samples were non-compliant for zearanol and taleranol. For beta-agonists (A5), there were only two non-compliant samples in 2009 (0.01 %).

- For prohibited substances, 0.07 % of samples were found to be non-compliant. Substances identified were chloramphenicol (n = 25), nitrofurans (n = 25) and nitroimidazoles (n = 9).

- For antibacterials (B1), 0.21 % of the samples analysed under the Directive 96/23 monitoring were non-compliant. Additionally, Germany reported non-compliant results from applying inhibitor tests. The highest frequencies of non-compliant samples for antibacterials were found in honey (0.98 %), rabbit meat (0.63 %), and aquaculture (0.48 %).

- A relatively high proportion of non-compliant samples was found for anticoccidials (B2b): 2.05 % in poultry, 1.19 % in eggs, 4.44 % in rabbits, and 0.54 % in farmed game.

- Instances of non-compliance for anthelmintics (B2a) were reported in bovines (0.14 %), pigs (0.1 %), sheep and goats (0.28 %), aquaculture (0.39 %), and milk (0.3 %).

- For carbamates and pyrethroids (B2c), there was only one non-compliant sample in pigs, and one in wild game.

- No non-compliant sample was reported for sedatives (B2d).

- For non-steroidal anti-inflammatory drugs (B2e) non-compliant samples were found in bovines (0.13 %), sheep and goats (0.2 %), horses (0.6 %), poultry (0.46 %), milk (0.03 %), and rabbits (1.39 %).

- Non-compliant samples for “other pharmacologically active substances” (B2f) were reported in bovines (0.37 %), poultry (0.2 %), and pigs (0.09 %).

- In the group of “other substances and environmental contaminants" (B3), the highest percentage of non-compliant samples in almost all species was found for chemical elements (B3c) (2.25 %). Cadmium, lead, and mercury were the most frequent elements identified.

- Instances of non-compliance for organochlorine compounds (B3a) and organophosphorus compounds (B3b) were much lower: 0.19 % and 0.04 %, respectively.

- For mycotoxins (B3d), nine non-compliant samples were reported for ochratoxin A in pigs, one for aflatoxin B1 in sheep and goats, and five for aflatoxin M1 in milk.

- Dyes (B3e) were reported in aquaculture (1.6 %). Substances found were malachite green and leuco-malachite-green.

- The residue situation in 2009 was similar to the previous two years for all substance groups. However, because the sampling plan and spectrum of substances analysed were not necessarily the same over the three years, this comparison should be regarded as having a high degree of uncertainty.

RECOMMENDATIONS

- For a more detailed analysis at matrix (food, non-food, meat, blood, etc.) and substance level, a database containing all individual test results for each sample, and an accurate sample description for both compliant and non-compliant samples should be considered in the future.

- According to Regulation (EC) 396/2005 the annual report on pesticides residues prepared by EFSA should also take into consideration the results transmitted under Directive 96/23/EC on substances recognised both as veterinary medicinal products and pesticides (e.g. carbamates, pyrethroids, organophosphorus compounds). Currently, the aggregate data can not be used in the assessment of pesticide residues. The framework used for data transfer and storage of pesticide residues may be considered in the future for veterinary medicinal products as well.

- As suggested by the Committee for Medicinal Products for Veterinary Use (CVMP) (European Medicine Agency) the residue monitoring data could be an important source of information on the compatibility of the MRLs recommended by the CVMP and the withdrawal periods established by the CVMP and national regulatory authorities. Currently, information relevant to this issue is not captured in the database and thus it is impossible to perform any evaluation in this respect. It is recommended that information on the violation reason (e.g. abusive use, withdrawal period not respected) should be captured in the database.

- A common approach for reporting the corticosteroids either in group A3 (steroids) or in group B2f (other pharmacologically active substances), would permit a more clear analysis of the two groups.

- Results of inhibitor tests that are not considered part of the residue monitoring plan under Council Directive 96/23/EC should not be included in the EU residue database but transmitted separately, if needed.

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APPENDICES

A. LIST OF NON-COMPLIANT RESULTS: TARGETED SAMPLING

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
Bovines	A2[17]	Thiouracil	DK	250	2	0.80
			FR	1435	11	0.77
			UK	431	3	0.70
			IE	260	11	4.23
			LU	4	1	25.00
			PL	102	1	0.98
		Sub-total	**6**		**29**	
	A3[18]	Boldenone	IT	53	1	1.89
		Boldenone-Alpha	DE	641	24	3.74
			UK	445	22	4.94
			IT	53	1	1.89
			NL	1467	6	0.41
		Boldione	IT	53	1	1.89
		Dexamethasone	IT	2939	18	0.61
			NL	1482	5	0.34
		Epinandrolone (19-Norepitestosterone)	DE	642	15	2.34
		Estradiol-17-Beta	NL	117	4	3.42
		Nandrolone	PL	100	1	1.00
		Prednisolone	IT	2939	3	0.10
		Prednisone	IT	1499	1	0.07
		Progesterone	UK	163	1	0.61
		Testosterone-17-Alpha	EE	7	2	28.57
		Testosterone-17-Beta	NL	160	2	1.25
			PL	189	1	0.53
		Sub-total	**6**		**108**	
	A4	Alpha-Zeralanol (Zeranol)	FR	3862	17	0.44
			UK	398	16	4.02
			IT	273	1	0.37

[17] Several Member States claimed that the presence of thiouracil was not due to illegal treatment but was caused by feed containing cruciferous plants

[18] Several Member States claimed that residue findings of boldenone-alpha and epinandrolone were not attributable to illegal treatment of animals. The positive findings were more likely linked to the endogenous production of these substances.

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
		Beta Zearalanol (Taleranol)	DE	230	2	0.87
			FR	3862	17	0.44
			IT	567	2	0.35
		Sub-total	**4**		**55**	
	A5	Clenbuterol	UK	936	1	0.11
		Isoxsuprine	NL	320	1	0.31
		Sub-total	**2**		**2**	
	A6	Chloramphenicol	FR	3419	1	0.03
			IT	311	1	0.32
		Dimetridazole	SK	19	1	5.26
		SEM (semicarbazide)	IE	208	4	1.92
			PL	120	1	0.83
		Sub-total	**5**		**8**	
	B1	Amoxycillin	CY	18	1	5.56
			HU	90	2	2.22
			IT	266	1	0.38
		Antibacterials	FR	2047	2	0.10
			LT	200	1	0.50
			PL	1032	4	0.39
		Benzylpenicillin (Penicillin G)	AT	342	1	0.29
		Chlortetracyclin	FR	3345	1	0.03
			UK	1542	2	0.13
		Ciprofloxacin	LT	32	1	3.13
		Dihydrostreptomycin	UK	1542	1	0.06
			LT	1	1	100.00
			NL	1777	1	0.06
		Doxycycline	ES	827	1	0.12
		Enrofloxacin	DE	775	1	0.13
			LT	32	1	3.13
		Marbofloxacin	DE	907	1	0.11
		Neomycin	CZ	3	3	100.00
			NL	1777	1	0.06
		Oxytetracycline	BE	513	1	0.19
			CY	18	1	5.56
			ES	961	2	0.21
			FR	3345	14	0.42
			IT	488	1	0.20
			NL	1777	1	0.06
			PL	1032	1	0.10
		Sulfadiazine	AT	256	1	0.39

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
			BE	513	1	0.19
			UK	134	1	0.75
		Sulfadimethoxine	BE	513	3	0.58
			IT	1817	2	0.11
		Sulfadimidine	AT	256	1	0.39
			BE	513	1	0.19
			IT	1817	3	0.17
		Sulfamonomethoxine	IT	1817	1	0.06
		Tetracycline	DE	1019	2	0.20
			FR	3345	3	0.09
		Tilmicosin	UK	1542	1	0.06
		Tulathromycin	CZ	2	2	100.00
		Tylosin, Tylosin A	FR	2047	1	0.05
		Sub-total	**13**		**71**	
	B2a	Doramectin	FR	499	1	0.20
			SE	50	2	4.00
		Ivermectin	AT	39	1	2.56
			NL	304	2	0.66
		Moxidectin	FR	499	1	0.20
		Oxfendazole	UK	460	2	0.43
		Sub-total	**5**		**9**	
	B2e	Antipyrin-4-Methylamino	DE	174	1	0.57
		Diclofen (Diclofenac)	FR	595	1	0.17
		Flunixin-Meglumine	DE	272	1	0.37
		Phenylbutazone	DE	728	1	0.14
			UK	651	2	0.31
		Sub-total	**3**		**6**	
	B2f	Dexamethasone	BE	2410	1	0.04
			DE	535	1	0.19
			ES	733	6	0.82
			UK	107	1	0.93
			PL	51	1	1.96
		Prednisolone	BE	2410	1	0.04
			ES	206	5	2.43
			FR	428	3	0.70
		Prednisone	ES	167	2	1.20
		Triamcinolone acetonide	ES	3	1	33.33
		Sub-total	**6**		**22**	
	B3a	Dioxins	IT	76	2	2.63
		gamma-HCH (HCH, Lindane)	PL	175	1	0.57

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
		WHO-PCDD/F-PCB-TEQ	BE	108	1	0.93
			DE	5	2	40.00
			DK	100	1	1.00
		WHO-PCDD/F-TEQ	BE	108	1	0.93
		Sub-total	**5**		**8**	
	B3c	Cadmium Cd	CZ	49	8	16.33
			DE	320	3	0.94
			ES	254	2	0.79
			FR	614	1	0.16
			UK	61	6	9.84
			HU	19	2	10.53
			LT	30	1	3.33
			LV	14	3	21.43
			NL	134	4	2.99
			SI	11	4	36.36
		Lead Pb	DE	320	1	0.31
		Mercury Hg	DE	320	15	4.69
		Sub-total	**10**		**50**	
		Total in bovine animals			**368**	
Pigs	A2	Thiouracil	EE	5	1	20.00
			FR	230	1	0.43
			IE	31	9	29.03
		Sub-total	**3**		**11**	
	A3	17-Beta nortestosteron	FI	169	1	0.59
		Boldenone	DE	487	1	0.21
		Nandrolone	DE	487	6	1.23
			FR	688	12	1.74
			NL	583	9	1.54
			PL	694	6	0.86
		Progesterone	HU	0[(a)]	1	
		Sub-total	**6**		**36**	
	A6	Chloramphenicol	DE	2007	1	0.05
			FR	3006	3	0.10
			IT	609	1	0.16
			LT	17	1	5.88
			LV	29	2	6.90
			NL	401	2	0.50
		Dimetridazole	SK	8	1	12.50
		Hydroxymetronidazol (MNZOH)	FR	340	3	0.88
		Metronidazole	DE	3237	1	0.03

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
			HU	1	1	100.00
		Nitrofurazone	NL	309	1	0.32
		SEM (semicarbazide)	DE	545	1	0.18
		Sub-total	**8**		**18**	
	B1	Antibacterials	LT	300	1	0.33
			PL	3070	3	0.10
		Benzylpenicillin (Penicillin G)	DE	412	1	0.24
			DK	2067	6	0.29
		Chlortetracyclin	DE	2120	1	0.05
			ES	319	2	0.63
			UK	644	2	0.31
			IT	366	1	0.27
		Ciprofloxacin	LT	22	1	4.55
		Dihydrostreptomycin	DE	561	1	0.18
			NL	2969	2	0.07
		Doxycycline	ES	3504	6	0.17
			IT	366	4	1.09
			NL	2969	4	0.13
			PL	3070	3	0.10
		Enrofloxacin	DE	962	1	0.10
			ES	3159	1	0.03
			LT	22	1	4.55
		Gentamicin	HU	0[(a)]	1	
		Lincomycin	LT	1	1	100.00
		Marbofloxacin	BE	1755	1	0.06
		Oxytetracycline	CY	101	1	0.99
			DE	823	1	0.12
			DK	2067	2	0.10
			ES	319	6	1.88
			FR	3027	2	0.07
			UK	644	1	0.16
			NL	2969	4	0.13
			PL	3070	1	0.03
		Penicillin	PL	3070	2	0.07
		Spectinomycin	LT	1	1	100.00
		Sulfadiazine	BE	1855	2	0.11
			CZ	412	2	0.49
			DE	2172	3	0.14
			ES	4107	2	0.05
			UK	844	1	0.12

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
			IE	207	1	0.48
			NL	2969	2	0.07
		Sulfadimethoxine	BE	1855	2	0.11
			IT	1516	12	0.79
			PT	660	1	0.15
		Sulfadimidine	CY	101	1	0.99
			DE	2170	1	0.05
			ES	4054	4	0.10
			GR	197	3	1.52
		Sulfamethoxazole	AT	854	1	0.12
			NL	2969	1	0.03
		Tetracycline	DE	2119	2	0.09
		Trimethoprim	DE	253	2	0.79
			IE	207	1	0.48
		Tulathromycin	NL	2969	1	0.03
		Tylosin, Tylosin A	ES	211	6	2.84
		Sub-total	**17**		**116**	
	B2a	Doramectin	SE	212	2	0.94
		Levamisole	NL	503	6	1.19
		Sub-total	**2**		**8**	
	B2c	Fenvalerate (sum of RR, SS, RS and SR isomers)	NL	41	1	2.44
		Sub-total	**1**		**1**	
	B2f	Prednisolone	BE	231	1	0.43
			ES	884	1	0.11
			FR	200	2	1.00
		Prednisone	FR	200	2	1.00
		Sub-total	**3**		**6**	
	B3a	1,2,3,4,6,7,8-HpCDF	ES	11	1	9.09
		1,2,3,4,7,8,9-HpCDF	ES	11	1	9.09
		1,2,3,4,7,8-HxCDF	ES	11	1	9.09
		1,2,3,6,7,8-HxCDF	ES	11	1	9.09
		1,2,3,7,8,9-HxCDF	ES	11	1	9.09
		1,2,3,7,8-PeCDF	ES	11	1	9.09
		2,3,4,6,7,8-HxCDF	ES	11	1	9.09
		2,3,4,7,8-PeCDF	ES	11	1	9.09
		2,3,7,8-TCDF	ES	11	1	9.09
		DDT: Sum DDT, DDE, DDD	PL	272	1	0.37
		gamma-HCH (HCH, Lindane)	PL	272	1	0.37

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
		Sub-total	**2**		**11**	
	B3c	Cadmium Cd	DE	1360	9	0.66
			FR	444	1	0.23
			NL	152	1	0.66
		Lead Pb	IT	302	5	1.66
		Mercury Hg	DE	1359	90	6.62
		Sub-total	**4**		**106**	
	B3d	Ochratoxin A	AT	22	1	4.55
			GR	44	4	9.09
			PL	108	4	3.70
		Sub-total	**3**		**9**	
		Total in pigs	**22**		**322**	
Sheep/Goats	A2	Thiouracil	FR	25	1	4.00
			IE	23	7	30.43
		Sub-total	**2**		**8**	
	A3	Boldenone-Alpha	UK	530	12	2.26
		Epinandrolone (19-Norepitestosterone)	NL	21	2	9.52
		Nandrolone	AT	25	1	4.00
			UK	530	28	5.28
		Sub-total	**3**		**43**	
	A4	Alpha-Zeralanol (Zeranol)	UK	80	1	1.25
		Sub-total	**1**		**1**	
	A6	Chloramphenicol	FR	240	1	0.42
		Ronidazol	ES	228	2	0.88
		SEM (semicarbazide)	IE	38	4	10.53
		Sub-total	**3**		**7**	
	B1	Chlortetracyclin	ES	1332	6	0.45
		Enrofloxacin	ES	1307	2	0.15
		Gentamicin	NL	152	1	0.66
		Neomycin	NL	152	1	0.66
		Oxytetracycline	CY	48	2	4.17
			ES	1329	2	0.15
			FR	720	1	0.14
		Sulfadiazine	ES	1732	12	0.69
			FR	750	1	0.13
		Sulfadimethoxine	FR	750	3	0.40
		Tulathromycin	DE	5	1	20.00

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
		Sub-total	**5**		**32**	
	B2a	Closantel	IE	261	2	0.77
		Doramectin	UK	511	1	0.20
		Fenbendazole	IE	261	1	0.38
		Ivermectin	NL	74	1	1.35
		Oxfendazole	UK	979	1	0.10
		Rafoxanide	IE	261	3	1.15
		Sub-total	**3**		**9**	
	B2e	Diclofen (Diclofenac)	CY	42	1	2.38
		Sub-total	**1**		**1**	
	B3b	Chlorpyrifos	UK	609	1	0.16
		Diazinon	FR	125	1	0.80
		Sub-total	**2**		**2**	
	B3c	Cadmium Cd	ES	188	1	0.53
			UK	54	3	5.56
			GR	120	4	3.33
			HU	5	1	20.00
		Lead Pb	ES	188	2	1.06
			UK	54	2	3.70
			IT	44	1	2.27
		Mercury Hg	DE	31	8	25.81
		Sub-total	**6**		**22**	
	B3d	Aflatoxin B1	IT	44	1	2.27
		Sub-total	**1**		**1**	
		Total in sheep and goats	**11**		**126**	
Horses	A3	17-Alpha nortestosteron	MT	1	1	100.00
		17-Beta nortestosteron	MT	1	1	100.00
		Nandrolone	NL	12	1	8.33
		Sub-total	**2**		**3**	
	B1	Dihydrostreptomycin	ES	1	1	100.00
		Sulfadiazine	AT	10	1	10.00
		Sub-total	**2**		**2**	
	B2e	Antipyrin-4-Methylamino	AT	15	1	6.67
		Salicylic acid	LT	2	1	50.00
		Sub-total	**2**		**2**	
	B3c	Cadmium Cd	AT	24	1	4.17
			CZ	1	1	100.00
			DE	4	1	25.00
			ES	63	12	19.05
			FR	148	1	0.68
			IT	161	1	0.62

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
			PL	153	9	5.88
			PT	6	4	66.67
			SI	2	2	100.00
		Lead Pb	PT	6	2	33.33
		Sub-total	**9**		**34**	
		SUM:	12		**41**	
Poultry	A3	Estradiol-17-Beta	NL	95	1	1.05
		Sub-total	**1**		**1**	
	A6	AOZ (3-amino-2-oxazolidone)	BE	185	1	0.54
			GR	52	1	1.92
		Chloramphenicol	BE	181	2	1.10
			DE	903	1	0.11
			ES	537	5	0.93
			IT	608	1	0.16
		SEM (semicarbazide)	IT	227	1	0.44
		Sub-total	**5**		**12**	
	B1	Antibacterials	PL	1177	4	0.34
		Chlortetracyclin	UK	1308	3	0.23
		Ciprofloxacin	ES	284	2	0.70
		Doxycycline	BE	419	4	0.95
			DE	850	1	0.12
			ES	695	5	0.72
			IT	72	1	1.39
			PL	23	1	4.35
		Enrofloxacin	ES	409	7	1.71
			HU	1043	1	0.10
		Oxytetracycline	ES	279	2	0.72
			FR	1407	1	0.07
			IT	72	2	2.78
		Sulfadimidine	ES	408	1	0.25
		Sub-total	**9**		**35**	
	B2b	Lasalocid	UK	628	3	0.48
			PL	625	7	1.12
		Maduramicin	FR	100	6	6.00
			PT	142	2	1.41
		Monensin	BE	200	1	0.50
			UK	628	1	0.16
		Nicarbazin	AT	80	2	2.50
			BE	200	3	1.50
			CZ	100	2	2.00

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
			FR	100	21	21.00
			UK	628	42	6.69
			IE	225	9	4.00
			IT	319	2	0.63
			NL	336	7	2.08
			PL	232	1	0.43
			PT	142	17	11.97
		Salinomycin	UK	628	1	0.16
			MT	24	2	8.33
			PL	232	2	0.86
		Sub-total	**11**		**131**	
	B2e	Diclofen (Diclofenac)	IE	18	1	5.56
		Ketoprofen	BE	93	2	2.15
		Sub-total	**2**		**3**	
	B2f	Olaquindox	PT	85	1	1.18
		Sub-total	**1**		**1**	
	B3a	Dioxins	IT	50	1	2.00
			MT	9	1	11.11
		gamma-HCH (HCH, Lindane)	DE	172	1	0.58
		Sub-total	**3**		**3**	
	B3c	Cadmium Cd	FR	297	1	0.34
		Lead Pb	GR	39	1	2.56
		Sub-total	**2**		**2**	
		Total in poultry	**15**		**188**	
Aquaculture	A3	Boldenone Methyl (Dianabol, Methandienon, Methandrostenolone, Testosterone dihydromethyl)	FR	81	1	1.23
		Testosterone-17-Beta	NL	5	1	20.00
		Sub-total	**2**		**2**	
	B1	Inhibitors	DE	53	9	16.98
		Sub-total	**1**		**9**	
	B2a	Emamectin B1a	UK	255	3	1.18
		Sub-total	**1**		**3**	
	B3a	Dioxins	LT	7	2	28.57
		DDT: Sum DDT, DDE, DDD	PL	71	1	1.41
		Sub-total	**2**		**3**	
	B3c	Arsenic As	ES	38	2	5.26

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
		Cadmium Cd	GR	131	1	0.76
		Lead Pb	GR	131	1	0.76
		Sub-total	**2**		**4**	
	B3e	Malachite Green	AT	83	3	3.61
			DE	404	2	0.50
			PL	158	7	4.43
			SK	34	1	2.94
		Malachite Green-Leuco	AT	83	6	7.23
			CZ	80	3	3.75
			DE	401	8	2.00
			DK	60	1	1.67
			GR	86	9	10.47
		Sub-total	**7**		**40**	
		Total in aquaculture			**61**	
Milk	A6	Chloramphenicol	EE	100	1	1.00
			ES	247	1	0.40
			SK	112	1	0.89
		Sub-total	**3**		**3**	
	B1	Amoxycillin	UK	1085	1	0.09
			IE	313	1	0.32
		Antibacterials	LT	842	2	0.24
			PL	1576	5	0.32
		Benzylpenicillin (Penicillin G)	AT	265	1	0.38
			EE	1033	1	0.10
			LT	30	1	3.33
		Cloxacillin	LT	30	1	3.33
			NL	410	1	0.24
		Inhibitors	CY	25807	34	0.13
		Sulfadimidine	IE	313	1	0.32
		Tetracyclines	SI	25	1	4.00
		Sub-total	**9**		**50**	
	B2a	Closantel	IE	278	4	1.44
		Doramectin	DE	1151	1	0.09
		Fenbendazole	FR	299	1	0.33
		Moxidectin	BE	43	1	2.33
		Nitroxinil	IE	278	7	2.52
		Rafoxanide	IE	278	1	0.36
		Sub-total	**4**		**15**	
	B2e	Flunixin	BE	45	1	2.22
		Sub-total	**1**		**1**	

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
	B3a	Dioxins	IT	87	2	2.30
		Sub-total	**1**		**2**	
	B3b	Chlorpyrifos ethyl	FR	80	1	1.25
		Sub-total	**1**		**1**	
	B3c	Cadmium Cd	GR	85	1	1.18
		Lead Pb	FR	79	1	1.27
			GR	85	2	2.35
			PL	155	1	0.65
		Sub-total	**3**		**5**	
	B3d	Aflatoxin M1	GR	110	3	2.73
			IT	742	2	0.27
		Sub-total	**2**		**5**	
		Total in milk			**82**	
Eggs	B1	Sulfadimethoxine	FR	207	1	0.48
		Sub-total	**1**		**1**	
	B2b	Diclazuril	PL	80	1	1.25
		Dinitrocarbanilide	FR	157	3	1.91
		Lasalocid	DE	308	10	3.25
			FR	157	1	0.64
			LT	16	1	6.25
		Maduramicin	SI	160	12	7.50
		Monensin	NL	410	1	0.24
		Narasin	CZ	55	1	1.82
			FI	70	1	1.43
		Nicarbazin	CZ	55	1	1.82
			FR	157	2	1.27
			UK	419	1	0.24
			PL	80	1	1.25
		Robenidine	CZ	55	1	1.82
		Salinomycin	AT	209	1	0.48
			DK	137	1	0.73
			EE	35	1	2.86
			FI	70	1	1.43
			MT	20	1	5.00
			PL	80	1	1.25
		Sub-total	**13**		**43**	
	B3a	DDE, op-	UK	83	1	1.20
		DDE, pp'-	DE	142	1	0.70
		DDT: Sum DDT, DDE, DDD	DE	103	1	0.97
			SK	51	1	1.96

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
		Endrin	DE	143	1	0.70
		WHO-PCDD/F-PCB-TEQ	DE	119	2	1.68
		WHO-PCDD/F-TEQ	DE	123	2	1.63
		Sub-total	**3**		**9**	
		Total in eggs	**14**		**53**	
Rabbit	B1	Benzosulfonamide	FR	450	1	0.22
		Oxytetracycline	ES	126	2	1.59
		Sulfadimethoxine	FR	450	6	1.33
			IT	54	1	1.85
		Sub-total	**3**		**10**	
	B2b	Diclazuril	CY	10	7	70.00
		Maduramicin	PT	17	3	17.65
		Salinomycin	CZ	11	1	9.09
			PT	17	1	5.88
		Sub-total	**3**		**12**	
	B2e	Ketoprofen	BE	10	1	10.00
		Sub-total	**1**		**1**	
	B3c	Cadmium Cd	FR	20	1	5.00
		Sub-total	**1**		**1**	
		Total in rabbit meat	**7**		**24**	
Farmed Game	A6	AMOZ (5-methylmorpholino-3-amino-2-oxazolidone)	BE	10	1	10.00
		Sub-total	**1**		**1**	
	B1	Doxycycline	PT	26	1	3.85
		Sub-total	**1**		**1**	
	B2b	Lasalocid	UK	21	1	4.76
		Sub-total	**1**		**1**	
	B3c	Cadmium Cd	FI	27	12	44.44
		Lead Pb	GR	24	1	4.17
		Mercury Hg	DE	8	2	25.00
		Sub-total	**3**		**15**	
		Total in farmed game	**6**		**18**	
Wild game	B2c	Permethrin	LU	30	1	3.33
		Sub-total		**30**	**1**	**3.33**
	B3a	DDE, pp'-	DE	99	2	2.02
		DDT, pp'-	DE	99	1	1.01
		DDT: Sum DDT, DDE, DDD	DE	71	4	5.63
		gamma-HCH (HCH, Lindane)	DE	98	1	1.02

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
		HCB (Hexachlorbenzene)	DE	99	1	1.01
		HCH-Alpha	DE	98	1	1.02
			FR	30	1	3.33
		HCH-Beta	DE	99	2	2.02
		Sub-total			**13**	
	B3c	Cadmium Cd	EE	61	2	3.28
			ES	55	2	3.64
			FI	75	30	40.00
			FR	58	3	
			LU	30	1	3.33
			LV	99	31	31.31
			PL	104	1	0.96
		Lead Pb	AT	93	2	2.15
			CZ	105	10	9.52
			DK	73	3	4.11
			EE	39	1	2.56
			UK	115	2	1.74
			HU	82	2	2.44
			IE	25	1	4.00
			LU	30	1	3.33
			LV	99	18	18.18
			NL	106	17	16.04
			PL	104	8	7.69
			PT	100	4	4.00
			SK	81	1	1.23
		Mercury Hg	CZ	105	1	0.95
			DE	89	24	26.97
			PL	104	1	0.96
		Sub-total			**166**	
		Total in wild game			**180**	
Honey	B1	Chlortetracyclin	GR	133	1	0.75
		Oxytetracycline	FR	50	1	2.00
		Sulfadimethoxine	HU	103	1	0.97
		Sulfamonomethoxine	SI	14	1	7.14
		Sulfathiazole	ES	80	3	3.75
			GR	133	1	0.75
			IT	27	1	3.70
		Sulfonamides	PL	136	12	8.82
		Tylosin, Tylosin A	SK	156	2	1.28
		Sub-total			**23**	
	B3a	Dichlorobenzene 1,2	UK	21	1	4.76

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results	
					N	%
		Sub-total			**1**	
	B3c	Lead Pb	FR	50	4	8.00
		Sub-total			**4**	
	B3f	Diethyltoluamide	DE	52	2	3.85
		Sub-total			**2**	
		Total in honey			**30**	
Total in all categories					**1493**	

(a): information not available

B. LIST OF NON-COMPLIANT RESULTS: SUSPECT SAMPLING

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results
				N	%
Bovines	A3	Boldenone	IT	185	1
		Boldenone-Alpha	AT	21	5
		Dexamethasone	IT	971	5
		Prednisolone	IT	922	2
		Prednisone	IT	922	3
		Sub-total			**16**
	B1	Amoxycillin	IE	4038	2
			IT	10	1
		Ampicillin	AT	2162	1
			BE	221	2
		Antibacterials	NL	10095	207
			PL	9	2
		Benzylpenicillin (Penicillin G)	AT	2162	3
			BE	221	6
			IT	10	2
		Ceftiofur	BE	221	1
		Chlortetracyclin	IT	12	2
		Ciprofloxacin	BE	221	3
		Danofloxacin	IT	9	1
		Dihydrostreptomycin	AT	102	1
			BE	221	6
			CZ	7	3
			ES	3	1
		Doxycycline	BE	221	1
			ES	22	9
		Enrofloxacin	BE	221	4
			IE	4038	1
		Inhibitors	DE	4084	18
		Marbofloxacin	BE	221	1
		Neomycin	CZ	7	3
		Oxytetracycline	AT	2162	2
			BE	221	6
			UK	22	1
			IE	4038	5
			IT	12	3
		Spiramycin	BE	221	1
		Streptomycin	BE	221	1
		Sulfadiazine	BE	221	1
		Sulfadimethoxine	BE	221	5

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results
				N	%
		Sulfadoxine	BE	221	2
		Tetracycline	BE	221	3
		Tetracyclines	IT	12	2
		Tilmicosin	BE	221	7
			IE	4038	1
		Tylosin, Tylosin A	BE	221	3
			DE	1	1
		Sub-total			**325**
	B2e	Antipyrin-4-Methylamino	AT	3	3
			BE	220	1
		Carprofen	BE	220	1
		Flufenamic-Acid	BE	220	1
		Flunixin	BE	220	12
		Meloxicam	BE	220	1
		Phenylbutazone	BE	220	3
			NL	3	1
		Tolfenamic acid	BE	220	8
		Sub-total			**31**
	B2f	Dexamethasone	BE	868	4
		Prednisolone	BE	581	4
		Sub-total			**8**
	B3a	WHO-PCDD/F-PCB-TEQ	AT	9	5
		Sub-total			**5**
	B3c	Cadmium Cd	CZ	45	12
			DE	2	1
		Sub-total			**13**
	B3d	Zearalenone (Mycotoxin F)	ES	1	1
		Sub-total			**1**
		Total			**399**
Pigs	B1	Ampicillin	BE	6	1
		Antibacterials	NL	8690	176
			PL	60	11
		Inhibitors	DE	824	13
		Marbofloxacin	IE	925	1
		Oxytetracycline	AT	80	1
			BE	6	1
			FI	2	2
			IE	925	1
		Sulfadiazine	UK	6	4
		Sulfadimidine	AT	80	1
			ES	46	4

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results
				N	%
		Tetracycline	BE	6	1
			PL	60	1
		Sub-total			**218**
	B2e	Antipyrin-4-Methylamino	BE	6	1
		Sub-total			**1**
	B2f	Dexamethasone	BE	7	1
		Sub-total			**1**
	B3a	PCB 138	IE	16	3
		PCB 153	IE	16	3
		PCB 180	IE	16	3
		Sub-total			**9**
	B3c	Mercury Hg	DE	15	11
		Lead Pb	IT	52	3
		Sub-total			**14**
		Total			**243**
Sheep/Goats	A3	Boldenone-Alpha	AT	5	1
		Sub-total		**5**	**1**
	B1	Inhibitors	DE	92	1
		Sulfadiazine	ES	207	2
		Sub-total			**3**
	B3a	HCB (Hexachlorbenzene)	IT	20	4
		Sub-total			**4**
		Total			**8**
Poultry	B1	Antibacterials	NL	14	1
		Doxycycline	ES	106	2
		Enrofloxacin	ES	27	3
		Oxytetracycline	ES	106	7
		Sulfadiazine	ES	109	2
		Sub-total			**15**
	B2b	Maduramicin	PL	22	1
		Nicarbazin	NL	23	2
		Nicarbazin	PL	22	1
		Salinomycin	MT	10	2
			PL	46	4
		Semduramicin	PL	22	2
		Sub-total			**12**
	B3f	Nicotine	DE	8	7
		Sub-total		**8**	**7**
		Total			**34**
Aquaculture	B3e	Malachite Green	AT	66	8
			DE	50	1

Category	Group	Substances	MS	Number of samples analysed	Non-compliant results
				N	%
			PL	68	1
		Malachite Green-Leuco	AT	66	19
			CZ	21	3
			DE	50	21
			IE	14	4
		Sub-total			**57**
		Total			**57**
Milk	B1	Inhibitors	DE	2	1
		Oxytetracycline	IT	11	1
		Sub-total			**2**
	B3a	WHO-PCDD/F-PCB-TEQ	AT	14	3
		HCH-Beta	IT	34	11
		Sub-total			**14**
	B3d	Aflatoxin M1	IT	76	13
		Sub-total			**13**
		Total			**29**
Eggs	B2b	Lasalocid	PL	15	1
		Nicarbazin	PL	15	1
		Semduramicin	PL	15	1
		Sub-total			**3**
	B3a	Dioxins	IT	7	3
		Sub-total			**3**
		Total			**6**
Honey	B1	Sulfonamides	PL	15	7
		Tetracycline	IT	6	1
		Sub-total			**8**
		Total			**8**
Total in all species					**784**

C. ANNEX I TO DIRECTIVE 96/23/EC

ANNEX I TO DIRECTIVE 96/23/EC

GROUP A – Substances having anabolic effect and unauthorized 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

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

ABBREVIATIONS

Country Codes

AT	Austria
BE	Belgium
BG	Bulgaria
CY	Cyprus
CZ	Czech Republic
DK	Denmark
EE	Estonia
FI	Finland
FR	France
DE	Germany
GR	Greece
HU	Hungary
IE	Ireland
IT	Italy
LV	Latvia
LT	Lithuania
LU	Luxembourg
MT	Malta
PL	Poland
PT	Portugal
RO	Romania
SI	Slovenia
SK	Slovak Republic
ES	Spain
SE	Sweden
NL	The Netherlands
UK	United Kingdom