Prioritising veterinary drug residues for monitoring in animal products

E.D. van Asselt, J. Jager, P. Rutgers, L.J.M. Jansen, E.F. Hoek-van den Hil, I. Barbu, M.G. Pikkemaat

WAGENINGEN
UNIVERSITY & RESEARCH

Prioritising veterinary drug residues for monitoring in animal products

E.D. van Asselt, J. Jager, P. Rutgers, L.J.M. Jansen, E.F. Hoek-van den Hil, I. Barbu, M.G. Pikkemaat

This research has been carried out by Wageningen Food Safety Research, institute within the legal entity Wageningen Research Foundation funded by the Netherlands Food and Consumer Product Safety Authority (NVWA) (project number WOT-02-002-004).

Wageningen, December 2020

WFSR report 2020.023

WAGENINGEN
UNIVERSITY & RESEARCH

Van Asselt, E.D., Pikkemaat, M.G., J. Jager, J., Rutgers, P., Hoek-van den Hil, E.F., Jansen, L.J.M., Barbu, I., 2020. *Prioritising veterinary drug residues for monitoring in animal products.* Wageningen, Wageningen Food Safety Research, WFSR report 2020.023. 226 pp.; 6 fig.; 17 tab.; 78 ref.

Project number: 1297371401
BAS-code: *WOT-02-002-004*
Project title: Beslisbomen Nationaal Plan Residuen (NPR)
Project leader: Esther van Asselt

This report can be downloaded for free at https://doi.org/10.18174/537589 or at www.wur.eu/food-safety-research (under WFSR publications).

P.O. Box 230, 6700 AE Wageningen, The Netherlands, T +31 (0)317 48 02 56, E info.wfsr@wur.nl, www.wur.eu/food-safety-research. WFSR is part of Wageningen University & Research.

WFSR report 2020.023

Distribution list:
- Marca Schrap (NVWA)
- Jacqueline Steenbergen-Biesterbos (NVWA)

Contents

Summary

Regulation (EU) 2017/625 prescribes that each EU member state should apply a risk-based monitoring program. In order to determine which substances and animal products have a higher priority to be included in the National Residue Control Plan (NRCP), decision trees have been drafted in an earlier project (van Asselt et al., 2018a; van Asselt et al., 2018b). These decision trees were used previously to prioritise antibiotics, antiparasitics, carbamates and NSAIDs into low, medium and high priority to include in the NRCP (van Asselt et al., 2019, 2020).

The current report describes the prioritisation of the remaining groups of substances included in the draft Annex of Regulation (EU) 2017/625 (i.e. 2.0 SANTE 2017 11987 Annex rev5) for bovine, milk, porcine, horse, goat, sheep, poultry and egg. This Annex has a different categorization than in the former Directive 96/23/EC and distinguishes between unauthorised (group A) and authorised (group B) substances, which were evaluated using two separate decision trees. For each substance (either in group A or group B), monitoring data (EFSA reports, RASFF notifications and results from the NRCP) were used to answer the questions related to monitoring in the decision trees. In case no non-compliances were found or monitoring data were limited, additional questions related to the likelihood of using the substance in the animal species were answered. For the group A substances, approvals outside the EU were used as well as EU registrations for companion animals and their online availability (e.g. on alibaba.com or ebay.com). Group A substances for which non-compliances were found, or for which there were indications of use, were evaluated on human health risks due to possible residues in animal products. Based on this outcome, the substances were classified as medium or high priority to include in the NRCP. For the group B substances, both EU registrations and sales data in the Netherlands were used to get an indication of potential use in the animal species. In case potential use was evaluated to be likely, the withdrawal periods of the veterinary medicinal products (VMPs) then determined whether the substances were classified as medium or low priority to include in the NRCP.

Within group A, the unauthorised substances, stilbenes (group A1a), antithyroid agents (group A1b), steroids (group A1c), resorcylic acid lactones (group A1d) and beta-agonists (group A1e) were evaluated as well as prohibited substances (group A2, formerly group A6) as listed in Table 2 of the Annex to Regulation (EU) 37/2010. Finally, unauthorised pesticides and biocides (group A3b), unauthorised antimicrobials (group A3c), unauthorised coccidiostats and histomonostats (group A3d), unauthorised protein and peptide hormones (group A3e), and unauthorised sedatives (group A3f) were evaluated. Within group B, insecticides (group B1b), sedatives (B1c), and other pharmacologically active substances (group B1e) listed in Table 1 of the Annex to Regulation (EU) 37/2010 were evaluated as well as authorised coccidiostats and histomonostats (group B2).

The evaluation showed that for around 30% of the substance-animal product combinations in group A and around 17% of the substance-animal product combinations in group B, indications for use were unknown. This resulted in a (worst-case) medium or high priority for these group A substances and the recommendation to start a survey for these group B substances. The evaluation also revealed a number of substances that are approved for food producing species only outside the EU. These have so far mostly been a blind spot in the NRCP. Therefore, it is recommended to expand the scope of the current NRCP, especially for products imported from outside the EU.

In general, it is recommended to include those substances in the NRCP that were classified as medium or high priority. Furthermore, it is recommended to keep track of new developments and trends driving VMP use, such as emergence of parasite related diseases, changes in legislation, or changes in farming systems.

1 Introduction

According to Regulation (EU) 2017/625, European Union Member States (EU MSs) need to establish a risk-based multi-annual national monitoring program (MANCP) that is regularly updated. Since the Regulation does not prescribe how these MANCP should be made risk-based, decision trees have been established previously that help to prioritise chemical substances in animal products (van Asselt et al., 2018a; van Asselt et al., 2018b). These decision trees allow for a categorization into low, medium and high priority substances for monitoring based on the possible occurrence of substances in animal products and the severity of potential health effects caused by the substances. Three separate decision trees were established for the evaluation of: I. Prohibited substances; II. Natural substances, contaminants and residues of pesticides, and III. Authorised active ingredients of veterinary medicinal products (VMPs) and feed additives. The outcome of these decision trees should not be interpreted as the risk of a substance, but rather as the priority to include the substance into the National Residue Control Plan (NRCP).

In two previous projects for the Office for Risk Assessment & Research of the Netherlands Food and Consumer Product Safety Authority (NVWA-BuRO), four groups of substances, i.e. antibiotics, antiparasitic agents, carbamates and non-steroidal anti-inflammatory drugs (NSAIDs) were prioritised for animal products (van Asselt et al., 2019, 2020). These four substance groups were based on the classification of group B substances in the draft Annex of Regulation (EU) 2017/625 at the time the research started (SANTE 11987-2017Rev1). Since then, the Annex has been revised (2.0 SANTE 2017 11987 Annex rev5). The groups of substances to be evaluated within the latest draft are largely comparable, but their classification changed. The only added group of substances are the unauthorised protein and peptide hormones.

Part of the group B substances has already been prioritised (van Asselt et al., 2019, 2020); these were group B1a (authorised antibiotics) and group B1d (NSAIDs). Furthermore, a large part of group B1b (authorised insecticides, fungicides, anthelmintics and antiparasitics) substances was evaluated, except for the pyrethroids and organophosphate pesticides (OPPs) because these were classified as a separate group in the earlier classification (i.e. SANTE 11987-2017Rev1). Moreover, unauthorised NSAIDs (part of group A3f) and a substantial number of unauthorised antiparasitics have been evaluated in the previous projects (van Asselt et al., 2019, 2020) because the discrimination between prohibited/unauthorised and authorised substances was not as distinct in the previous version of the draft Annex of Regulation (EU) 2017/625 (i.e. SANTE 11987-2017Rev1) as in the current version. The new classification as drafted in 2.0 SANTE 2017 11987 Annex rev5 was used in the current project (in italics the groups that were (partly) evaluated earlier (van Asselt et al., 2019, 2020):

GROUP A – Prohibited or unauthorised pharmacologically active substances, used on food producing animals.

1. Substances with hormonal and thyreostatic action and beta agonists, whose use is prohibited under Directive 96/22/EC.
    a. Stilbenes (group A1 in the former Directive 96/23/EC)
    b. Antithyroid agents (group A2 in the former Directive 96/23/EC)
    c. Steroids (group A3 in the former Directive 96/23/EC)
    d. Resorcylic acid lactones, including zeranol (group A4 in the former Directive 96/23/EC)
    e. Beta-agonists (group A5 in the former Directive 96/23/EC)
2. Prohibited substances, listed in Table 2 of the Annex to Regulation (EU) No 37/2010 (group A6 in the former Directive 96/23/EC).
3. Pharmacologically active substances, not listed in Table 1 of the Annex to Regulation (EU) No 37/2010 or not authorised according to Regulation (EU) No 1831/2003.
    a. Dyes (group B3e in the former Directive 96/23/EC)
    b. Pesticides and biocides as defined in Reg. (EU) No 1107/20091 and biocides as defined in Reg. (EU) No 528/20122, which may be used in animal husbandry of food-producing animals (substances were previously grouped in the former Directive 96/23/EC in group B2a, B2c, B3b)
    c. Antimicrobial substances (group B2f in the former Directive 96/23/EC)
    d. Coccidiostats and histomonostats (group B2b in the former Directive 96/23/EC)
    e. Protein and peptide hormones (not included in the former Directive 96/23/EC)
    f. Any other pharmacologically active substance not listed in Table 1 of the Annex to Regulation (EU) No 37/2010 or not authorised according to Regulation (EU) No 1831/2003 and which may be misused on food producing animals (substances were previously grouped in the former Directive 96/23/EC in group B2a, B2d, B2e)

GROUP B – Pharmacologically active substances authorised for the use in food producing animals according to Union legislation.

1. Pharmacologically active substances listed in Table 1 of the Annex to Regulation (EU) No 37/2010.
    a. *Antimicrobial substances* (group B1 in the former Directive 96/23/EC)
    b. *Insecticides, fungicides, anthelmintics and anti-parasite agents (group B2a (anthelmintics, antiparasitics) and group B2c* (carbamates, pyrethroids) in the former Directive 96/23/EC)
    c. Sedatives (group B2d in the former Directive 96/23/EC)
    d. *Non-steroidal anti-inflammatory drugs (NSAIDs)* (group B2e in the former Directive 96/23/EC)
    e. Other pharmacologically active substances listed in Table 1 of the Annex to Regulation (EU) No 37/2010 (group B2f in the former Directive 96/23/EC)
2. Coccidiostats and histomonostats authorised according to Regulation (EU) No 1831/2003, for which MRLs are set under Union legislation and for which maximum levels are set under Regulation (EC) No 124/2009 (group B2b in the former Directive 96/23/EC)

The aim of the current study was to evaluate all groups of substances indicated in the latest draft Annex of Regulation (EU) 2017/625 (i.e. 2.0 SANTE 2017 11987 Annex rev5) that were not evaluated in the previous reports (van Asselt et al., 2019, 2020) for the following animal products: bovine products, milk, porcine products, horse products, goat products, sheep products, poultry and eggs. Unauthorised dyes (group A3a) were not included in the evaluation as these dyes (crystal violet, malachite green and brilliant green) are only used in aquaculture. The remaining group A substances were classified using decision tree I for prohibited substances (Figure 1) resulting in a low, medium or high priority to include in the Dutch NRCP. In some cases, the indications for use were evaluated as unknown resulting in a medium or high priority due to a worst-case approach. In order to differentiate between substances that obtained a medium or high priority due to non-compliances and/or indications of use, provisos were added. Proviso #1 indicates that no product registrations were found, but nevertheless, VMPs were found online meaning that the substance might be used. Proviso #2 indicates that registrations were found, but availability and use of the VMPs was unlikely (e.g. injections are not likely to be used in poultry). The group B substances were classified using decision tree III for authorised substances (Figure 2)) resulting in a low, medium or high priority to include in

[1] OJ L 309, 24.11.2009, p. 1.
[2] OJ L 250, 15.9.2012, p. 17.

the NRCP. In case monitoring data were limited, this resulted in the recommendation to start a survey. When sales data of the substance were above a predefined threshold (see section 2.4), this was indicated with the addition of an asterisk (*1). In case non-compliances were found in related animal species, this was indicated with the addition of *2.

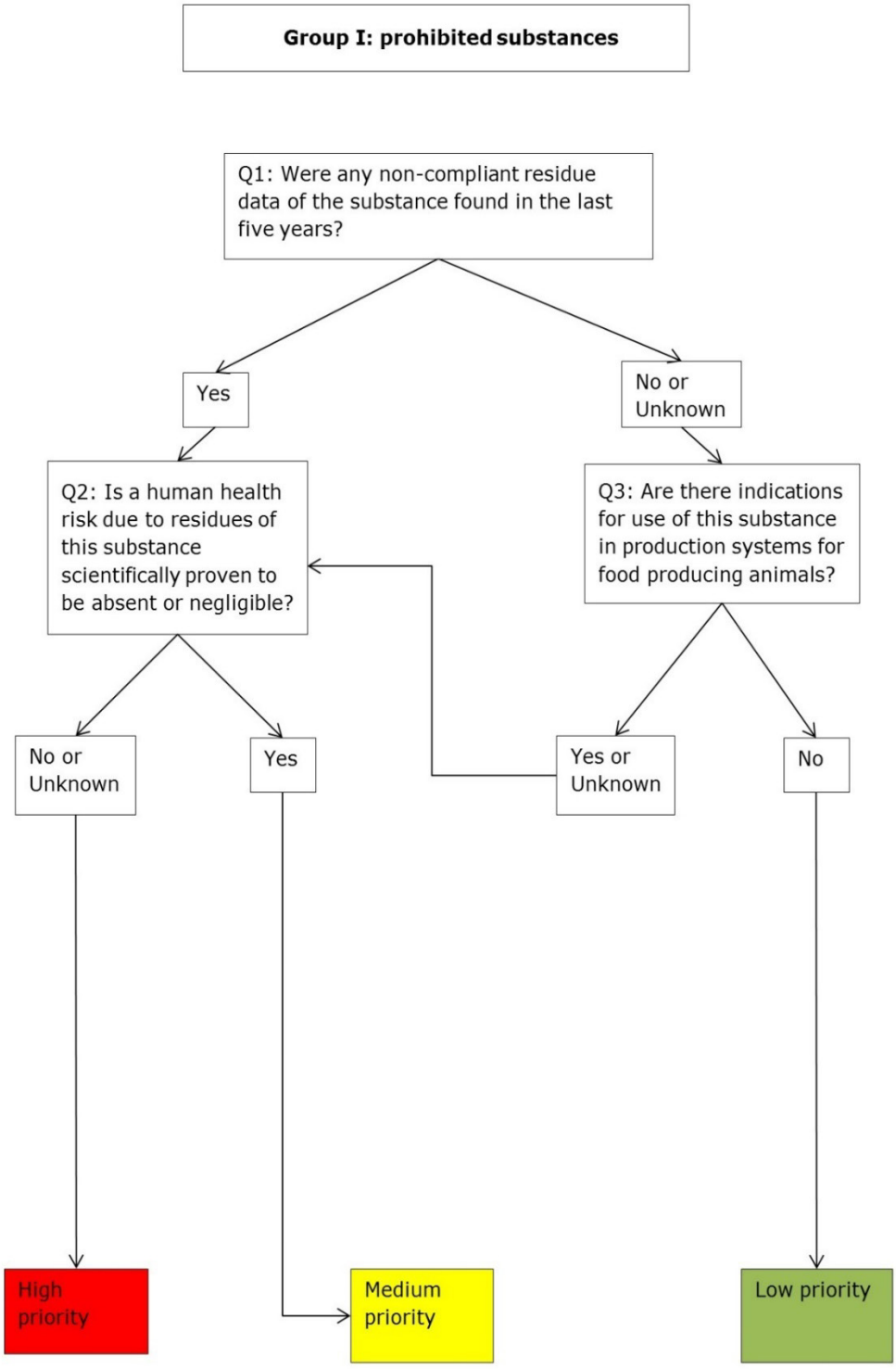

Figure 1 *Decision tree I for prohibited substances (van Asselt et al., 2020)*

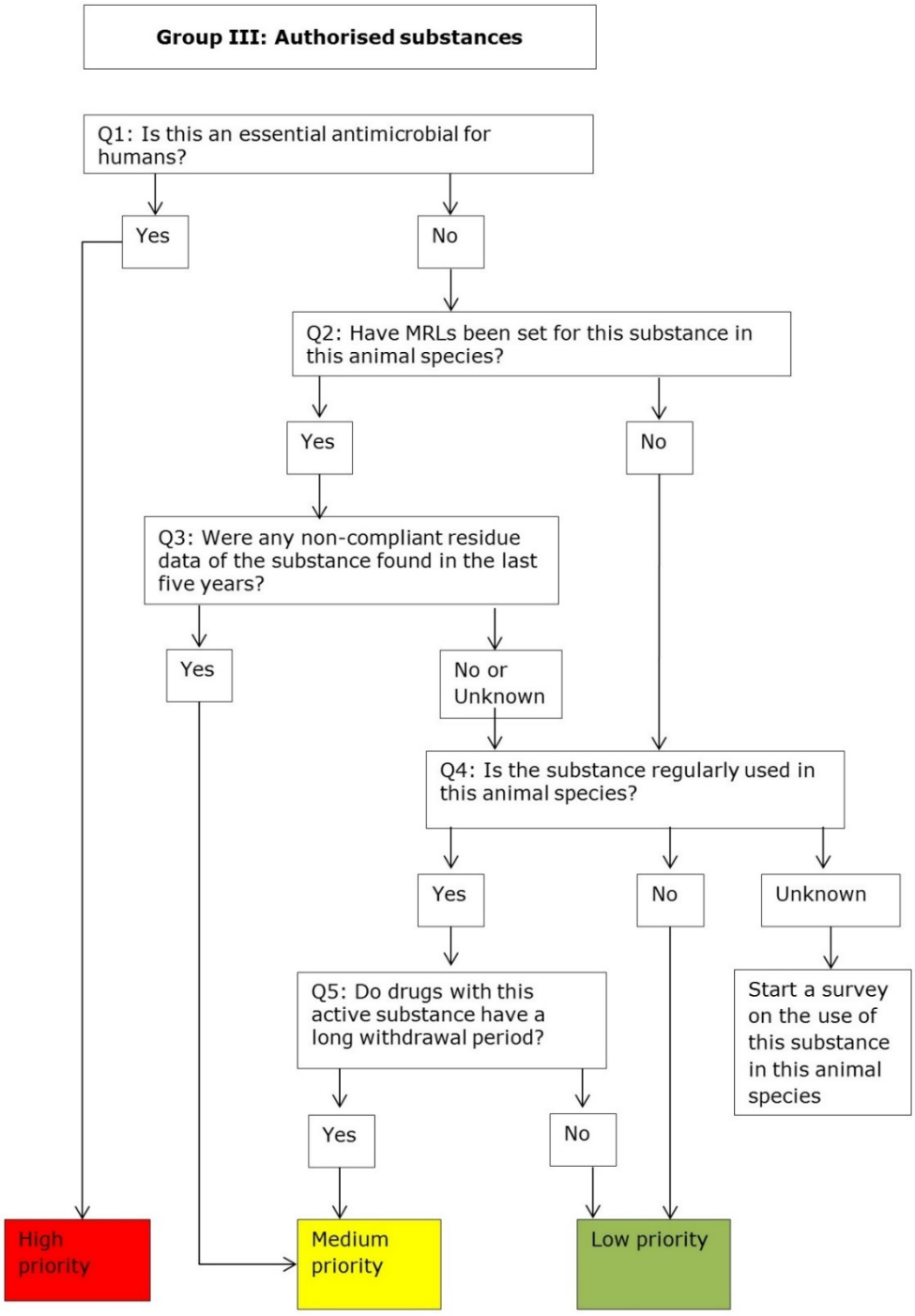

Figure 2 *Decision tree III for authorised substances (van Asselt et al., 2020)*

2 Materials and Methods

2.1 Approach

All groups of substances mentioned in Regulation (EU) 2017/625 except for the previously evaluated antibiotics, antiparasitics, carbamates and NSAIDs were evaluated using either decision tree I (for group A substances) or decision tree III (for group B substances). For each of the evaluated group of substances, a list of substances to be prioritised was established as indicated in section 2.2. Once the list was established, the classification was performed using the decision trees. The questions were answered in separate Excel files for each group of substances. Each animal product was evaluated in a separate Excel sheet. Both national and EU monitoring data were used to answer questions on non-compliances per animal product. The monitoring data were also used as indication for use. For example, if non-compliances were found in bovine, this was seen as indication of potential use in other mammals, such as porcine. Furthermore, other information sources were used to establish potential use of VMPs as indicated in sections 2.3 and 2.4. Finally, for prohibited substances, the effect on human health was evaluated using EFSA or JECFA reports. Further details are indicated in section 2.3.

2.2 List of substances

For the group B substances, Table 1 of Regulation (EU) 37/2010 was used. The group A substances contain all unauthorised substances and in principle can contain an endless list of substances. The only category that is strictly defined is the group A2 substances, which comprises the substances in Table 2 of Regulation (EU) 37/2010. For the other group A substances, in essence, we included those substances currently monitored in the Plan (NRCP), supplemented with the ones mentioned in the EURL guidance document (EURL, 2020b). In case non-compliances were found in the EU monitoring data for a particular group A substance not represented yet, this substance was also added to the list. Additionally, substances retrieved from non-EU regulatory information concerning legal limits with respect to feed additives and veterinary drug residues were included, as well as substances available for treatment of non-food producing animals (www.diergeneesmiddeleninformatiebank.nl). Group A3f (any other unauthorised pharmacologically active substance) was, in line with the EURL guidance document, limited to unauthorised sedatives and NSAIDs. The latter group of substances has been evaluated previously (van Asselt et al., 2019, 2020).

Specifically for horse, the list of substances essential for treating horses as indicated in Regulation (EU) 122/2013 was also used to complete the list of substances. We did our utmost to include all substances that may potentially be relevant for veterinary use. However, we cannot exclude that substances may have been overlooked. Specific information used to adapt the initial list of substances within each group of substances is described in chapter 3.

2.3 Prioritisation of unauthorised substances

The established list of group A substances, was run through decision tree I. The following questions were answered:

1. Were any non-compliant data on residues of the substance found in the last five years?
   In order to answer this question, monitoring data on residues of the substances were used. For this purpose, EFSA reports on the results from the monitoring of VMP residues and other substances in live animals and animal products, RASFF data and results from the NRCP were used. Since the previous reports included the period 2013-2017, it was decided to use the same time period for the current study and supplement this with the most recent available data. Therefore, EFSA reports were used for the years 2013-2018 to identify non-compliances in EU MSs (EFSA,

2015, 2016b, 2017, 2018a, 2019, 2020). RASFF notifications for 2013-2019 were used (RASFF portal). Furthermore, national monitoring data were extracted from the Dutch Quality Program for Agricultural Products (KAP; www.chemkap.rivm.nl). Data originated from Wageningen Food Safety Research (WFSR) and the NVWA and were available for the years 2013, 2017 and 2018. Since this KAP dataset was not complete (years 2014, 2015 and 2016 were missing), the WFSR laboratory information management system (LIMS) data for 2013-2018 were additionally used. Furthermore, information on non-compliances were obtained from reports on the analytical results obtained within the NRCP for 2014, 2015 and 2016 from NVWA. Like in the previous research (van Asselt et al., 2020), when the number of samples per year was < 10 and no non-compliances were found, this question was answered as unknown since the number of samples was deemed too low to draw a definite conclusion.

2. Is a human health risk due to residues of the substance scientifically proven to be absent or negligible?
   Reports from authorities in Europe or the US (e.g. EFSA, JECFA, EMA) were checked for the potential effects of the substance on human health. In case adverse effects were concluded by the authorities to be absent or negligible, this question was answered with a 'yes'. Opinions from European authorities were leading in case of conflicting conclusions.
3. Are there indications for use of this substance in production systems for food producing animals?
   Several sources of information were used to answer this question:
   - Non-compliances in other animals were checked using the following approach:
     - non-compliances in other mammals except horse were seen as indication of use for bovine, porcine, goat and sheep
     - non-compliances in all other mammals was seen as indication for use in horse
     - non-compliances in other milk-producing animals (goat, sheep) and non-compliances in bovine were seen as indication for use in dairy cows (milk)
     - non-compliances in poultry was seen as indication for use in laying hens (eggs) and vice versa
   - Registrations in the US were evaluated using the FDA database (https://animaldrugsatfda.fda.gov) and the Code of Federal Regulations (CFR) Title 21 part 556 and 558 (www.accessdata.fda.gov/). If products are registered in the US, the substance was assumed to be available on the market. For unauthorised pesticides (A3b), antimicrobials (A3c) and coccidiostats (A3d), additionally the Chinese national food safety standard (Ministry of Agriculture and Rural Affairs of China et al., 2019) was checked as well as additional sources for approvals outside the EU.
   - Registrations in the EU for companion animals were evaluated using the database of the Medicines Evaluation Board of the College ter Beoordeling van Geneesmiddelen (CBG-MEB)) as well as available databases from other EU countries (www.vetcompendium.be, www.vetidata.de, www.vmd.defra.gov.uk, www.ircp.anmv.anses.fr) and the EU Veterinary Medicinal Product Database (http://vet.eudrapharm.eu/vet/welcome.do), of which at this moment the content is limited to registrations authorised by the EC, and the Competent Authorities of Ireland and Denmark. In case registrations for horse were found, Q3 was answered positively for horse.
   - The online availability was checked on online marketplaces such as alibaba.com and ebay.com. For the steroids, websites for anabolic steroids were screened such as anabolenpower.com, steroiden.com and anabolenkopen24.nl. In case products were available that can be used as such in animals (e.g. injections), the availability was answered as 'Y'. However, in case, a potential use was unlikely (e.g. only available as injectables resulting in unlikely use in poultry), the availability was answered as 'Unl.'.

An overview of all criteria underlying the questions of decision tree I, the possible answers and the ensuing conclusion is reflected in the table below (Table 1).

Table 1 *Various possible outcomes of the questions in decision tree I (with Y: yes, N: no and U: unknown due to a lack of data)*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	EFSA 2013-2017	RASFF 2013-2019	NP data 2013-2018	Conclusion	Non-compliances related species[a]	Approved product by FDA for use in food producing animals	Registered product EU for companion animals	Availability (alibaba/ ebay/other)	Conclusion	Conclusion	
Substance A	Y	N	N	Y	-->	-->	-->	-->	-->	Y/N	Medium/High
Substance B	N	Y	N	Y	-->	-->	-->	-->	-->	Y/N	Medium/High
Substance C	N	N	Y	Y	-->	-->	-->	-->	-->	Y/N	Medium/High
Substance D	N	N	N	N	N	-->	-->	-->	N	-->	Low
Substance E	N	N	N	N	U	N	N	N/Unl.[b]	N	-->	Low
Substance F	N	N	N	N	U	N	N	Y	U	Y/N	Medium/High#[1]
Substance G	N	N	N	N	U	Y	N	Y	Y	Y/N	Medium/High
Substance H	N	N	N	N	U	N	Y	Y	Y	Y/N	Medium/High
Substance I	N	N	N	N	U	Y	N	N	N	-->	Low
Substance J	N	N	N	N	U	N	Y	N	N	-->	Low
Substance K	N	N	N	N	U	Y	Y	Unl.[b]	U	Y/N	Medium/High#[2]
Substance L	N	N	N	N	U	Y	N	Unl.[b]	U	Y/N	Medium/High#[2]
Substance M	N	N	N	N	U	N	Y	Unl.[b]	U	Y/N	Medium/High#[2]
Substance N	N	N	N/U	N/U	Y	-->	-->	-->	Y	Y/N	Medium/High
Substance O	N	N	U	U	N/U	N	N	N/Unl.[b]	N	-->	Low
Substance P	N	N	U	U	N/U	N	N	Y	U	Y/N	Medium/High#[1]
Substance Q	N	N	U	U	N/U	Y	N	Y	Y	Y/N	Medium/High
Substance R	N	N	U	U	N/U	N	Y	Y	Y	Y/N	Medium/High
Substance S	N	N	U	U	N/U	Y	N	N	N	-->	Low
Substance T	N	N	U	U	N/U	N	Y	N	N	-->	Low
Substance U	N	N	U	U	N/U	Y	N	Unl.[b]	U	Y/N	Medium/High#[2]
Substance V	N	N	U	U	N/U	N	Y	Unl.[b]	U	Y/N	Medium/High#[2]
Substance W	N	N	U	U	N/U	Y	Y	Unl.[b]	U	Y/N	Medium/High#[2]

a) Non-compliances of related species:

- non-compliances in other mammals (except horse): Y for bovine, porcine, goat and sheep
- non-compliances in all other mammals: Y for horse
- non-compliances in other milk-producing animals (goat, sheep) and non-compliances in bovine: Y for dairy cows (milk)
- non-compliances in poultry: Y for laying hens (eggs) and vice versa

b) Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species))

These substances have a medium/high priority because:

1) Products were found online, but no FDA approvals or EU registrations were found

2) FDA approvals or EU registrations were found, but use in the animal species is unlikely

2.4 Prioritisation of authorised substances

The established list of group B substances was evaluated using decision tree III for authorised substances. Each question was answered using the following information:

1. Is this an essential antimicrobial for humans?
   This question was not relevant for the substances evaluated in this study.
2. Have MRLs been set for this substance in this animal species or for this animal product?
   This question was answered using Table 1 in the Annex of Regulation (EU) 37/2010 (latest consolidated version 10/01/2020). The extrapolation of MRLs in species with MRLs to species without MRLs as outlined in Regulation (EU) 2017/880 was not taken into account. Therefore, if no MRL was indicated for the animal product in Regulation (EU) 37/2010, the question was answered negatively.
3. Were any non-compliant residue data of the substance found in the last five years?
   In order to answer this question, the same data sources were used as indicated under question 1 in section 2.3.
4. Is the substance regularly used in this animal species?
   Several sources of information were used to answer this question:
   - Non-compliance data for the specified animal species or related species (as indicated in section 2.3).
   - Detection of the active substance at levels below the MRL for the specified animal species.
   - Veterinary drug registrations for the specified animal species were queried from the database of the Medicines Evaluation Board of the College ter Beoordeling van Geneesmiddelen (CBG-MEB)) as well as available databases from other EU countries (www.vetcompendium.be, www.vetidata.de, www.vmd.defra.gov.uk, www.ircp.anmv.anses.fr) and the EU Veterinary Medicinal Product Database (http://vet.eudrapharm.eu/vet/welcome.do), of which at this moment the content is limited to registrations authorised by the EC, and the Competent Authorities of Ireland and Denmark.
   - Sales data from the Dutch Association of Manufacturers and Importers of Veterinary Medicinal Products (FIDIN) for 2019 were consulted. FIDIN data were available for all food producing species. However, since registrations for goat and sheep are usually also registered for cows, a distinction in sales data specific for these animal species was not possible. Furthermore, sales data for cows include both beef cattle and dairy cows and sales data for poultry include both broilers and laying hens. In case a distinction for a specific animal species was not possible, a worst-case approach was used meaning that sales data were attributed to all species indicated. For example, in case 100 kg of substance A was sold in 2019 with a registration for poultry, this number was used as input both for broilers and for laying hens. Analogous to the previous prioritisation of substances (van Asselt et al., 2019, 2020), median values were used as cut-off values in order to answer question 4. In contrast to the previous evaluation, the median values were now divided over groups of substances such that sales data in the same order of magnitude were combined. This resulted in the following thresholds:
     - antibiotics, antiparasitics, NSAIDs and coccidiostats: 150 kg for bovine, porcine and poultry;
     - antibiotics, antiparasitics, NSAIDs and coccidiostats: 65 kg for horse, goat and sheep;
     - beta-agonists, sedatives and steroids: 10 kg for all food producing species.
5. Do drugs with this active substance have a long withdrawal period?
   Withdrawal periods were obtained from the product specifications retrieved from the VMP database of the Medicines Evaluation Board of the *College ter Beoordeling van Geneesmiddelen* (CBG-MEB) database. In case the longest withdrawal time was longer than 5 days for chicken and dairy cows and longer than 10 days for the remaining species (Danaher et al., 2016), this question was answered with a 'yes'.

An overview of all criteria underlying the questions in decision tree III, the possible answers to the individual questions and the ensuing conclusion is reflected in Table 2.

Table 2 *Various possible outcomes of the questions in decision tree III (with Y: yes, N: no and U: unknown due to a lack of data)*

Substance	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?	Conclusion priority
			EFSA 2013-2018	RASFF 2013 - 2017	NP data 2013-2018	Conclusion	NC results	Monitored and found in NP	Registration EU for animal species	FIDIN[a]	Conclusion	Withdrawal period: >5 days (chicken, dairy cows); >10 days (other species)	
Substance A	Y	-->	-->	-->	-->	-->	-->	-->	-->	-->	-->	-->	High
Substance B	N	Y	N	N	N	N	N	N	N/Y	N	N	-->	Low
Substance C	N	Y	N	N	N	N	N	N	Y	Y	Y	N/Y	Low/Medium
Substance D	N	Y	N	N	N	N	N	Y	Y	N/Y	Y	N/Y	Low/Medium
Substance E	N	Y	N	N	N	N	N	Y	N	N/Y	N	-->	Low
Substance F	N	Y	N	N	U	U	U	U	N/Y	N/U	U	-->	Start survey
Substance G	N	Y	N	N	U	U	U	U	Y	Y	U	-->	Start survey[*1]
Substance H	N	Y	N	N	U	U	Y(related species)[b]	U	N/Y	N/Y	U	-->	Start survey[*1,2]
Substance I	N	Y	Y	N	N	Y	-->	-->	-->	-->	-->	-->	Medium
Substance J	N	Y	N	Y	N	Y	-->	-->	-->	-->	-->	-->	Medium
Substance K	N	Y	N	N	Y	Y	-->	-->	-->	-->	-->	-->	Medium
Substance L	N	Y	Y	Y	Y	Y	-->	-->	-->	-->	-->	-->	Medium
Substance M	N	N	-->	-->	-->	-->	N	N	N/Y	N	N	-->	Low
Substance N	N	N	-->	-->	-->	-->	N	N	Y	Y	Y	N/Y	Low/Medium
Substance O	N	N	-->	-->	-->	-->	N	Y	N/Y	N	Y	N/Y	Low/Medium
Substance P	N	N	-->	-->	-->	-->	U	U	N/Y	N/U	U	-->	Start survey
Substance Q	N	N	-->	-->	-->	-->	U	U	Y	Y	U	-->	Start survey[*1]
Substance R	N	N	-->	-->	-->	-->	Y	-->	-->	-->	-->	-->	Medium
Substance S	N	N	-->	-->	-->	-->	Y(related species)[b]	U	N/Y	N/Y	U	-->	Start survey[*1,2]

a) Thresholds used:

- Antibiotics, antiparasitics, coccidiostats, NSAIDs in bovine, porcine, poultry: >150 kg
- Antibiotics, antiparasitics, coccidiostats, NSAIDs in horse, goat, sheep: >65 kg
- beta-agonists, steroids, sedatives in all food producing animals: >10 kg

b) NC Related species:

- non-compliances in other mammals (except horse): Y for bovine, porcine, goat and sheep
- non-compliances in all other mammals: Y for horse
- non-compliances in other milk-producing animals (goat, sheep) and non-compliances in bovine: Y for dairy cows (milk)
- non-compliances in poultry: Y for laying hens (eggs) and vice versa

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

1) Sales data are above the threshold

2) Non-compliances were found in related species

3 Results

For each of the substance groups, a list of substances was derived that was evaluated using either decision tree I for prohibited substances (group A) or decision tree III for authorised substances (group B).

3.1 Stilbenes (Group A1a)

3.1.1 List of substances

The information specified in section 2.2 was used to establish an initial list of substances. Three stilbenes were specified in the EURL guidance document: diethylstilbestrol (DES), dienestrol (DE) and hexestrol (HEX). Additionally, benzestrol was included, since this is also monitored in the NRCP and is a synthetic nonsteroidal estrogen belonging to the stilbestrol group.

3.1.2 Results of the prioritisation

In total, 4 stilbenes were evaluated according to decision tree I for unauthorised substances. An overview of the prioritisation is given in Table 3 and a more detailed overview of the results is provided in Annex 1.

Table 3 *Prioritisation of stilbenes per animal product using decision tree I*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
Diethylstilbestrol (DES)	High	High	High	High	High	High	High[#1]	Low
Dienestrol (DE)	Low	Low	Low	Low	Low	Low	Low	Low
Hexestrol (HEX)	High	High	High	High	High	High	Low	Low
Benzestrol	Low	Low	Low	Low	Low	Low	Low	Low

#: These substances have a high priority because:

1) Products were found online, but no FDA approvals or EU registrations were found

For stilbenes, non-compliant residue data were found for diethylstilbestrol and hexestrol in the last 5 years in the RASFF notifications and European monitoring data of VMP residues and other substances in animal products (EFSA, 2015b, 2016b, 2017b, 2018b, 2019b). Non-compliant residue data of diethylstilbestrol were found in bovine and porcine products, and for hexestrol in bovine, porcine and sheep products. No residue data were available for stilbenes in milk and egg products. Therefore, Q1 was answered with unknown (U) for all stilbenes in milk and egg products.

Substances that answered negatively or unknown for Q1, were subjected to Q3 – are there indications for use of this substance in production systems for food producing animals. With non-compliant residue data for diethylstilbestrol and hexestrol in mammals and milk-producing animals, Q3 was answered positively for diethylstilbestrol and hexestrol in milk, and animal products of horse, goat and sheep. With no non-compliant residue data in other mammals, dienestrol and benzestrol were answered negatively for Q3 in milk and all other mammalian products.

As indicated in section 2.3, non-compliances in mammals are not seen as indication of use in poultry. Dienestrol, hexestrol and benzestrol had no further indications of potential use in poultry, and were consequently answered negatively for Q3. Diethylstilbestrol, however, was answered unknown for Q3, since products directly suitable for administration in poultry were found online. Since stilbenes are

primarily used as growth hormones, their use in laying hens was assumed not likely resulting in a low priority.

Diethylstilibestrol and hexestrol were subjected to Q2 – is a human health risk due to residues of this substance scientifically proven to be absent or negligible? Stilbenes are prohibited as growth promotors in animals. Diethylstilbestrol is a human carcinogen (group 1 classification) (IARC, 1979). Also sufficient evidence for hexestrol was found for carcinogenicity in animals (EFSA, 2013).

Therefore, Q2 was negatively answered for diethylstilboestrol and hexestrol and these substances are classified as 'high priority' for bovine, milk, porcine, horse, goat and sheep. Furthermore, diethylstilbestrol was also classified as high priority for poultry (with proviso high#1 since no registered products were found, but VMPs were available online).

3.2 Antithyroid agents (Group A1b)

3.2.1 List of substances

The information specified in section 2.2 was used to establish an initial list of substances. Six antithyroid agents were specified in the EURL guidance document: thiouracil, methylthiouracil, propylthiouracil, tapazole (methimazole), benzylthiouracil and mercaptobenzimidazol. Additionally, phenylthiouracil was added, since it is monitored in the NRCP and also belongs to the thyreostats group. Finally, ethylthiouracil was added since non-compliances were found in the EU monitoring data in the year 2010.

3.2.2 Results of the prioritisation

In total, 8 antithyroid agents were evaluated according to decision tree I for unauthorised substances. An overview of the prioritisation is given in Table 4 and a more detailed overview of the results is provided in Annex 2.

Table 4 *Prioritisation of antithyroid agents per animal product using decision tree I*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
Benzylthiouracil	Low	Low	Low	Low	Low	Low	Low	Low
Ethylthiouracil	Low	Low	Low	Low	Low	Low	Low	Low
Mercaptobenzimidazol (2-benzimidazolethiol)	High	High	High	High	High	High	Low	Low
Methylthiouracil	High	High	High	High	High	High	Low	Low
Phenylthiouracil	Low	Low	Low	Low	Low	Low	Low	Low
Propylthiouracil	High	High	High	High	High	High	High[#2]	High[#2]
Tapazole (methimazole)	High	High	High	High	High	High	High[#2]	High[#2]
Thiouracil	High	High	High	High	High	High	Low	Low

#: These substances have a high priority because:

1) Products were found online, but no FDA approvals or EU registrations were found (not applicable for this group of substances)

2) FDA approvals or EU registrations were found, but use in the animal species is unlikely

For bovine products, non-compliant residue data were found for the substances mercaptobenzimidazol, methylthiouracil, propylthiouracil, tapazole and thiouracil. Therefore, Q1 was answered positively for these substances in bovine animal products. These non-compliances were seen as indication for use in dairy cows, thereby resulting in a positive answer for Q3.

For porcine products, non-compliant residue data were found for the substances methylthiouracil, propylthiouracil and thiouracil. Therefore, Q1 was answered positively for these substances in porcine animal products. Since non-compliant results were found for mercaptobenzimidazol and tapazole in bovine, this was seen as indication of use and Q3 was answered positively.

The monitoring data for horse products showed non-compliances for thiouracil resulting in a positive answer for Q1. For the remaining substances, limited data were available (<10 samples/year) and thus Q1 was answered as unknown (U). Since non-compliant residue data were found for mercaptobenzimidazol, methylthiouracil, propylthiouracil and tapazole in other mammals, this was seen as an indication of use and, therefore, Q3 was answered positively.

For goat and sheep, only limited data (<10 samples/year) were available resulting in an unknown (U) classification for Q3. Non-compliant findings in goat and/or sheep animal products were found for thiouracil. Since no distinction was made between goat and sheep, Q1 was answered positively for this substance in both goat and sheep animal products. Similar to horse, Q3 was answered positively for mercaptobenzimidazol, methylthiouracil, propylthiouracil and tapazole due to non-compliant results in other mammals.

For all animal products, Q1 was answered with unknown (U) for benzylthiouracil, ethylthiouracil and phenylthiouracil since no non-compliant results for these substances were found in the EFSA annual reports or the RASFF notifications database, and no monitoring data were available in the national monitoring data (NRCP). These substances were subjected to Q3 – are there indications for use of this substances in production systems for food producing animals? No non-compliant findings were found at Q1 for other mammals, no FDA approved products and EU registered products for companion animals were found and no (online) availability. This resulted in negatively answering Q3 for benzylthiouracil, ethylthiouracil and phenylthiouracil. Therefore, these substances were categorised as a low priority.

Additionally, for poultry and egg, Q3 was answered as unknown for propylthiouracil and tapazole, since registrations in the EU were found for companion animals, but the availability and potential use were unlikely. For these substances, a proviso (#2) was added to the final prioritisation indicating that these substances resulted in a high priority because its use in poultry and eggs was unknown. Registered products were found, but their availability online was considered unlikely since only indistinct powders were found for which the ingredients were unclear.

Substances that received a positive answer in Q1 and a positive or unknown answer in Q3 were subject to Q2 – is a human health risk due to residues of this substance scientifically proven to be absent or negligible? Thyreostats (mercaptobenzimidazol (2-benzimidazolethiol), methylthiouracil, propylthiouracil, tapazole (methimazole) and thiouracil) are inhibitors of the thyroid function. These drugs can be used in humans and non-food-producing animals to treat hyperthyroidism (EFSA, 2013). Methylthiouracil, propylthiouracil and thiouracil are considered to be 'possibly carcinogenic to humans', classification group: 2B, while tapazole was classified 'as not classifiable as to its carcinogenicity to humans' (group: 3) (IARC, 2001). Mercaptobenzimidazol was not classified by IARC. However, generally, the group of thyreostats is considered as possibly carcinogenic and, therefore, use is prohibited in food producing animals (EFSA, 2013). As a result, Q2 was answered negatively for mercaptobenzimidazol (2-benzimidazolethiol), methylthiouracil, propylthiouracil, tapazole (methimazole) and thiouracil and these substances are classified as 'high priority' for bovine, milk, porcine, horse, goat and sheep. Furthermore, propylthiouracil and tapazole were also classified as high priority for poultry and eggs (with proviso high#2 since registered products were found, but only indistinct powders were found online).

3.3 Steroids (Group A1c)

3.3.1 List of substances

The information specified in section 2.2 was used to establish an initial list of substances. Additional substances were included that are present in in-house standard operation procedures (SOP) or for which non-compliant residue data (EFSA, RASFF, NRCP) were found. The additionally included substances were: 17α-1-testosterone, estrone, boldione, 1,4-androstadiene-3,17-dione (Androstadienedione (ADD)), noretiocholanolone, 19-norepiandrosterone, 17α-methyl-5β-androstane-3α,17β-diol (MEAD I), ciclesonide, cortisol (hydrocortisone), cortisone, prednisone, flumethasone, clobetasol, beclomethasone, isoflupredone and triamciolone, which brings the total number of steroids

to be evaluated to 37. Within the NRCP data, steroids are monitored in different forms. These forms include steroid esters and deconjugated steroids. Steroid esters are commonly found in products for administration, and can be monitored in e.g. plasma, while 'free form' steroids are often monitored in urine after deconjugation (by β-glucuronidase from *Helix pomatia* or *Escherichia coli*). In the steroid monitoring, both forms are taken into account.

While 17β-estradiol, medroxyprogesterone and progesterone are listed in Regulation (EU) 37/2010, they were specified as 'No MRL required'. These are allowed for therapeutic or zootechnical purposes, only under veterinary control according to Regulation (EU) 37/2010. However, 17β-estradiol, medroxyprogesterone and progesterone are also listed as substances having anabolic effect and are unauthorised substances based on Regulation (EU) 1996/22. Consequently, no differentiation between residues of therapeutic use or growth-promoting use could be made. Therefore, substances classified as 'No MRL required' in Regulation (EU) 37/2010 and on the list of unauthorized substances in Regulation (EU) 1996/22 were evaluated according to decision tree I for unauthorised substances.

3.3.2 Results of the prioritisation

In total, 37 steroids were evaluated using decision tree I for unauthorised substances. An overview of the prioritisation of unauthorised steroids is given in Table 5. A more detailed overview of the results is provided in Annex 3. Another 8 steroids are authorised and were evaluated using decision tree III (see section 3.14), since MRLs were established in Regulation (EU) 37/2010.

For bovine products, non-compliant residue data were found for the substances 17α-boldenone, 17β-boldenone, methyltestosterone, 17α-testosterone, 17β-testosterone, 17α-trenbolone, 17β-trenbolone, 17α-nortestosterone (17α-nandrolone), 17β-nortestosterone (17β-nandrolone), 17α-estradiol, 17β-estradiol, 17α-1-testosterone, boldione, 1,4-androstadiene-3,17-dione (androstadienedione (ADD)), 17α-methyl-5β-androstan-3α,17β-diol (MEAD I), progesterone (4-pregnene-3,20-dione (pregnen(4)-3,20-dione)), cortisol (hydrocortisone), cortisone and prednisone. Therefore, Q1 was answered positively for these substances in bovine animal products.

For porcine products, non-compliant residue data were found for the substances 17β-boldenone, methyltestosterone, 17β-testosterone, 17α-trenbolone, 17β-trenbolone, 17α-nortestosterone (17α-nandrolone), 17β-nortestosterone (17β-nandrolone), 17β-estradiol, noretiocholanolone, 19-norepiandrosterone, cortisol (hydrocortisone) and flumethasone. Therefore, Q1 was answered positively for these substances in porcine animal products.

For horse products, limited data (< 10 yearly samples) were available from the NRCP. Therefore, if no non-compliant findings were found, Q1 was answered unknown (U). Non-compliant residue data were found for methyltestosterone, 17α-testosterone, 17α-nortestosterone (17α-nandrolone), 17β-nortestosterone (17β-nandrolone) and 17β-estradiol. For these substances, Q1 was answered positively in horse animal products.

For goat and sheep products, only limited samples (< 10) were analysed yearly – without non-compliant residue findings - and Q1 was answered unknown (U) for these products. Non-compliant findings in goat products were, however, found for 17α-boldenone, 17β-boldenone, methyltestosterone, 17β-testosterone, 17α-nortestosterone (17α-nandrolone) and 17β-nortestosterone (17β-nandrolone). Non-compliant findings in sheep animal products were found for 17α-boldenone, 17β-boldenone, methyltestosterone, 17β-testosterone, 17α-nortestosterone (17α-nandrolone) and 17β-nortestosterone (17β-nandrolone) and ethinylestradiol (EE2).

For poultry, non-compliant findings were found for 17α-testosterone, 17α-estradiol, 17β-estradiol, estrone and progesterone (4-pregnene-3,20-dione (pregnen(4)-3,20-dione)). Limited number of samples (<10) were analysed for ciclesonide, cortisol (hydrocortisone), cortisone, prednisone and beclomethasone. Therefore, these substances were answered with unknown (U) for Q1.

For milk and egg, no non-compliant results were found in the EFSA annual reports or the RASFF notifications database. Milk and egg are not monitored for steroids in the NRCP and, therefore, no

residue data were available in the national monitoring data. Therefore, Q1 was answered with unknown (U) for all steroids in milk and egg products.

Table 5 *Prioritisation of steroids per animal product using decision tree I*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
1,4-androstadiene-3,17-dione (Androstadienedione (ADD))	High	High[#1]	High	High	High	High	Low	Low
16β-hydroxy-stanozolol	Low	Low	Low	Low	Low	Low	Low	Low
17α-1-testosterone	High	High	High	High	High	High	Low	Low
17α-Boldenone	High	High	High	High	High	High	Low	Low
17α-Estradiol	High	High	High	High	High	High	High[#1]	High
17α-methyl-5β-androstan-3α,17β-diol (MEAD I)	High	High	High	High	High	High	Low	Low
17α-Nortestosterone (4-estren-17α-ol-3-one)	High	High	High	High	High	High	Low	Low
17α-Testosterone (4-Androsten-17α-ol-3-one)	High	High	High	High	High	High	High[#1]	High
17α-Trenbolone	High	High	High	High	High	High	High[#2]	High[#2]
17β-Boldenone	High	High	High	High	High	High	Low	Low
17β-Estradiol	High	High	High	High	High	High	High[#1]	High
17β-Nortestosterone (β-nandrolone)	High	High	High	High	High	High	Low	Low
17β-Testosterone (4-Androsten-17β-ol-3-one)	High	High	High	High	High	High	Low	Low
17β-Trenbolone	High	High	High	High	High	High	High[#2]	High[#2]
19-norepiandrosterone	High	Low	High	High	High	High	Low	Low
Beclomethasone	Low	Low	Low	Low	Low	Low	Low	Low
Boldione	High	High	High	High	High	High	Low	Low
Ciclesonide	Low	Low	Low	Low	Low	Low	Low	Low
CLAD (4-chloro-4-androst-3,17-dione) (chlorandrostenedione)	Low	Low	Low	Low	Low	Low	Low	Low
Clobetasol	Low	Low	Low	Low	Low	Low	Low	Low
Clostebol (CLTb) (4-androsten-4-chloro-17β-ol-3-one)	Low	Low	Low	Low	Low	Low	Low	Low
Cortisol (Hydrocortisone)	High	High	High	High	High	High	High[#2]	High[#2]
Cortisone	High	High	High	High	High	High	Low	Low
Estrone	low	Low	Low	Low	Low	Low	High	High
Ethinylestradiol (EE2)	High	High	High	High	High	High	High[#1]	High[#1]
Flumethasone	High	Low	High	High	High	High	Low	Low
Isoflupredone	Low	High	Low	High	High	High	High[#2]	High[#2]
Medroxyprogesterone	Low	High[#2]	Low	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]
Megestrol	Low	High	Low	High	High	High	High[#1]	High
Melengestrol	Low	High[#2]	Low	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]
Methylboldenone (1,4-Androstadien-17α-methyl-17β-ol-3-one)	low	Low	Low	Low	Low	Low	Low	Low
Methyltestosterone	High	High	High	High	High	High	High[#1]	High[#1]
Noretiocholanolone	High	Low	High	High	High	High	Low	Low
Prednisone	High	High	High	High	High	High	High[#2]	High[#2]
Progesterone (P1) (4-Pregnene-3,20-dione (Pregnen(4)-3,20-dione))	High	High	High	High	High	High	High[#1]	High
Stanozolol	Low	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]
Triamcinolone	Low	High	Low	High	High	High	High	High

#: These substances have a high priority because:

1) Products were found online, but no FDA approvals or EU registrations were found

2) FDA approvals or EU registrations were found, but use in the animal species is unlikely

The substances in the specified animal products for which Q1 was answered positively, were subjected to Q2 - is a human health risk due to residues of this substance scientifically proven to be absent or negligible? The remaining substances, answered negatively or unknown for Q1, were subjected to Q3 – are there indications for use of this substance in production systems for food producing animals? Q3 was answered as indicated in section 2.3.

For milk, non-compliant residue data of bovine, goat and sheep were seen as an indication of use and, therefore, Q3 was answered positively for 17α-boldenone, 17β-boldenone, methyltestosterone, 17α-testosterone, 17β-testosterone, 17α-trenbolone, 17β-trenbolone, 17α-nortestosterone (17α-nandrolone), 17β-nortestosterone (17β-nandrolone), 17α-estradiol, 17β-estradiol, ethinylestradiol, 17α-1-testosterone, boldione, 1,4-androstadiene-3,17-dione (androstadienedione (ADD)), 17α-methyl-5β-androstan-3α,17β-diol (MEAD I), progesterone (4-pregnene-3,20-dione (pregnen(4)-3,20-dione)), cortisol (hydrocortisone), cortisone and prednisone. Additionally, Q3 was answered positively for stanozolol, megestrol, isoflupredone and triamcinolone, since indications of potential use were found.

As indicated above, Q1 answered unknown for all substances in egg. Non-compliant results were found in poultry for 17α-testosterone, 17α-estradiol, 17β-estradiol, estrone, and progesterone. For these substances, Q3 was answered positively. If no non-compliant findings were found at Q1 for poultry, Q3 required further evaluation based on FDA approved products, EU registered products for companion animals and (online) availability. This resulted in positively answering Q3 for stanozolol, megestrol, and triamcinolone.

All substances answered negatively for Q1 and Q3 were categorised as low priority (see Table 5). The substances that answered positively for Q1 and positively or unknown for Q3, were subjected to Q2 – is a human health risk due to residues of this substance scientifically proven to be absent or negligible. The use of hormones for growth promotion in livestock animals is prohibited in the EU. The human health risks from hormone residues in bovine meat and meat products treated with six hormones for growth promotion have been extensively evaluated by the Scientific Committee on Veterinary Measures relating to Public Health (SCVPH). The substances 17β-estradiol, testosterone, progesterone, trenbolone acetate and melengestrol acetate were included in this evaluation (SCVPH, 1999). In 2002, the earlier conclusions of SCVPH were confirmed (SCVPH, 2002). It was concluded that risks to consumers have been identified, including endocrine, developmental and neurobiological, immunological, carcinogenic, genotoxic and immunotoxicological effects. These effects can be attributed to the parent compounds or the metabolites of these substances. The amount of evidence differed per substance. For 17β-estradiol, there was substantial scientific evidence that this substance has to be considered as a complete carcinogen. For melengestrol acetate, a non-quantifiable risk for consumers has been identified. For the other hormones, the risk could not be estimated. Concerns are highest for pre-pubertal children, because of extremely low endogenous production of hormones in this age group (SCVPH, 2002). No other JECFA or EFSA evaluations were found. Therefore, overall, there are no evaluations that show that residues of steroids (for which Q2 needed to be answered) used as growth promotor in livestock animals, do not cause severe or adverse effects in consumers. As a result, Q2 was negatively answered for all steroids for which Q2 needed to be answered leading to a ‘high priority’ classification.

3.4 Resorcylic acid lactones (Group A1d)

3.4.1 List of substances

The information specified in section 2.2 was used to establish an initial list of substances. Additional substances were included; these substances are metabolites, structurally similar to zearalenone and currently analysed in the NRCP, bringing the total amount of substances within the resorcylic acid lactones group for prioritisation to 6. It should be pointed out that zearalenone is a mycotoxin that can occur in various feed materials. Furthermore, plants and animals can metabolise this mycotoxin to a number of metabolites.

3.4.2 Results of the prioritisation

In total, 6 resorcyclic acid lactones (RALs) were evaluated according to decision tree I for unauthorised substances. An overview of the prioritisation is given in Table 6 and a more detailed overview of the results is provided in Annex 4.

Table 6 *Prioritisation of RAL per animal product using decision tree I*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
Zearalanone	High	High	High	High	High	High	Low	Low
Zearalenone	High	High	High	High	High	High	High	High
α-zearalanol (Zeranol)	High	High	High	High	High	High	High	High
β-zearalanol (Taleranol)	High	High	High	High	High	High	Low	Low
α-zearalenol	High	High	High	High	High	High	Low	Low
β-zearalenol	High	High	High	High	High	High	Low	Low

For bovine products, non-compliant residue data were found for all 6 RALs. For porcine products, non-compliant residue data were found for zearalanone, zearalenone, α-zearalanol (zeranol), and β-zearalanol (taleranol). For horse products, non-compliant residue data were found for zearalenone, α-zearalanol (zeranol), and β-zearalanol (taleranol). For goat and sheep products, non-compliant residue data were found for zearalenone, α-zearalanol (zeranol), β-zearalanol (taleranol), α-zearalenol, and β-zearalenol. For poultry products, non-compliant residue data were found for zearalenone, and α-zearalanol (zeranol). All these non-compliances resulted in positively answering Q1. It should be considered that non-compliant results can also result because of the mycotoxin in feed.

Since milk and eggs are not monitored in the NRCP, Q1 was answered unknown (U) for all 6 RALs in these animal products.

The substances in the specified animal products for which Q1 was answered positively, were subjected to Q2 - is a human health risk due to residues of this substance scientifically proven to be absent or negligible. The remaining substances, answered negatively or unknown for Q1, were subjected to Q3 – are there indications for use of this substance in production systems for food producing animals as indicated in section 2.3. Non-compliant residue data for all 6 RALs in bovine might have been due to feed contamination, but as a worst-case approach were considered as an indication of presence in milk. Therefore, Q3 was answered positively for all 6 RALs in milk. Furthermore, the non-compliant residue data for all 6 RALs in bovine were seen as an indications of use in other mammals, resulting in positively answering Q3 for all remaining substances in porcine, horse, goat and sheep animal products.

Non-compliant residue data for zearalenone and α-zearalanol (zeranol) in poultry, was seen as an indication for use in laying hens, resulting in a positive answer for these substances for Q3. For the other substances, there were no indications for use in poultry, so Q3 was answered negatively resulting in a low priority. The substances that were answered positively for Q3, were subjected to Q2 – is a human health risk due to residues of this substance scientifically proven to be absent or negligible. Zearalenone is a mycotoxin and can be present in food. A Tolerable Daily Intake (TDI) has been established by EFSA of 0.25 µg/kg bw/day. This is a group TDI for zearalenone and its modified forms (including zearalenone, zearalenone, α-zearalanol (zeranol), β-zearalanol (Taleranol), α-zearalenol and β-zearalenol) (EFSA, 2016a). EFSA also derived relative potency factors for these substances based on its estrogenicity. Some of the metabolites (e.g. α-zearalenol) are much more potent than zearalenone itself. Estimations of dietary exposure to zearalenone based on available occurrence data in food did not result in exceedance of the TDI and, therefore, it was concluded that there is no health concern (EFSA, 2011). However, the presence of the more potent metabolites like α-ZEL in edible products, including milk, could be a potential issue although data are very limited (EFSA, 2016a). In the EU, it was concluded that no quantitative estimate of the risk could be made from exposure to residues of the veterinary drug zeranol due to a lack of data (SCVPH, 1999). JECFA

evaluated the use of α-zearalanol (zeranol) as a veterinary drug for use as a growth promoter. When α-zearalanol is used according to good practice, the intake would not exceed the Acceptable Daily Intake (ADI) of 0.5 µg/kg bw/day as set at that time by JECFA (WHO, 2000). Due to some above described uncertainties and the dependence on the application and the doses used as growth promotor, potentially human health risks are not completely proven to be absent or negligible therefore,Q2 is negatively answered for zearalenone, zearalenone, α-zearalanol (Zeranol), β-zearalanol (Taleranol), α-zearalenol and β-zearalenol. As a result, these substances were classified as 'high priority' for bovine, milk, porcine, horse, goat and sheep. Furthermore, zearalenone and α-zearalanol (Zeranol) were classified as 'high priority' for poultry and egg.

3.5 Beta-agonists (Group A1e)

3.5.1 List of substances

The information specified in section 2.2 was used to establish an initial list of substances. In total, 36 beta-agonists were specified in the EURL guidance document. One of these substances, isoxsuprin, is listed in Regulation (EU) 37/2010 and specified as 'No MRL required for bovine and equidae'. This substance is allowed for therapeutic or zootechnical purposes, only under veterinary control in accordance with Council Directive 96/22/EEC. However, beta-agonists are also listed as substances having anabolic effect and unauthorised substances based on Regulation (EU) 1996/23. Consequently, no differentiation between residues originating from therapeutic use or growth-promoting use can be made. Therefore, substances classified as 'No MRL required' in Regulation (EU) 37/2010 but also on the list of unauthorized substances in Regulation (EU) 1996/23 were evaluated according to decision tree I for unauthorised substances. Additional to the EURL list of beta-agonists, metoprolol and lubabegron were added to the list of substances. Metoprolol was included since EFSA reported non-compliant residue data in beef in 2017 (EFSA, 2019). Metoprolol is formally classified in the selective beta blocking agents group, like sotalol and labetalol, which are also included in the EURL guidance document. Therefore, metoprolol is added to the list of beta-agonists. Lubabegron was included as there is an FDA approval in 2018 for Experior, a beta-adrenergic agonist/antagonist drug containing lubabegron.

3.5.2 Results of the prioritisation

In total, 38 beta-agonists were evaluated according to decision tree I for unauthorised substances. An overview of the prioritisation is given in Table 7 and a more detailed overview of the results is provided in Annex 5.

For bovine products, non-compliant residue data were found for the substances cimaterol, hydroxymethylclenbuterol, isoxsuprine, metoprolol, ractopamine, salbutamol, sotalol, terbutaline, tulobuterol and zilpaterol, resulting in a positive answer for Q1. For fenoterol, non-compliant results were found in goat, which was seen as an indication of use and, therefore, Q3 was answered positively. For milk, these non-compliant residue data were seen as an indication of use and therefore Q3 was answered positively for the same substances.

For porcine products, non-compliant residue data were found for the substances ractopamine and salbutamol. Therefore, Q1 was answered positively for these substances. Non-compliant residue data were found for cimaterol, fenoterol, hydroxymethylclenbuterol, isoxsuprine, metoprolol, sotalol, terbutaline, tulobuterol and zilpaterol in other mammals, except horse, resulting in a positive answer for Q3.

For horse products, non-compliant residue data were found for isoxsuprine, ractopamine and zilpaterol. For these substances, Q1 was answered positively in horse animal. For the other substances, limited data (< 10 samples/year) were available from the NRCP. Therefore, if no non-compliant findings were found, Q1 was answered unknown (U). Non-compliant residue data of other mammals were seen as an indication of use and, therefore, Q3 was answered positively for cimaterol, fenoterol, hydroxymethylclenbuterol, metoprolol, salbutamol, sotalol, terbutaline and tulobuterol.

For goat, only limited samples (<10) were analysed yearly – without non-compliant residue findings - and Q1 was answered unknown (U) for all beta-agonists except for fenoterol. For this substance, non-compliant results were found and thus Q1 was answered positively for goat. For sheep, this was seen as an indication for use and Q3 was answered positively. Additionally, Q3 was answered positively for goat and sheep for cimaterol, hydroxymethylclenbuterol, isoxsuprine, metoprolol, ractopamine, salbutamol, sotalol, terbutaline, tulobuterol and zilpaterol due to non-compliances found in bovine and/or pork.

For milk and egg, no non-compliant results were found in the EFSA annual reports or the RASFF notifications database. Milk and egg are not monitored for beta-agonists in the NRCP and, therefore, no residue data were available in the national monitoring data. Therefore, Q1 was answered with unknown (U) for all beta-agonists in milk and egg products. Additionally, for bovine, porcine, sheep and poultry, Q1 was answered as unknown (U) for those substances where no residue data were available in the national monitoring data and no non-compliant results were found in the EFSA annual reports or the RASFF notifications database.

Table 7 *Prioritisation of beta-agonists per animal product using decision tree I*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
Bambuterol	Low	Low	Low	Low	Low	Low	Low	Low
Bamethane	Low	Low	Low	Low	Low	Low	Low	Low
Brombuterol	Low	Low	Low	Low	Low	Low	Low	Low
Buctopamine	Low	Low	Low	Low	Low	Low	Low	Low
Carbuterol	Low	Low	Low	Low	Low	Low	Low	Low
Chlorbrombuterol (Bromchlorbuterol)	Low	Low	Low	Low	Low	Low	Low	Low
Cimaterol	High	High	High	High	High	High	Low	Low
Cimbuterol	Low	Low	Low	Low	Low	Low	Low	Low
Clencyclohexerol	Low	Low	Low	Low	Low	Low	Low	Low
Clenhexerol	Low	Low	Low	Low	Low	Low	Low	Low
Clen-iso-hexerol	Low	Low	Low	Low	Low	Low	Low	Low
Clenisopenterol	Low	Low	Low	Low	Low	Low	Low	Low
Clenpenterol	Low	Low	Low	Low	Low	Low	Low	Low
Clenproperol	Low	Low	Low	Low	Low	Low	Low	Low
Clorprenalin	Low	Low	Low	Low	Low	Low	Low	Low
Colterol	Low	Low	Low	Low	Low	Low	Low	Low
Fenoterol	High	High	High	High	High	High	Low	Low
Formoterol	Low	Low	Low	High[#1]	Low	Low	Low	Low
Hydroxymethylclenbuterol	High	High	High	High	High	High	Low	Low
Isoprenalin	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]	Low	Low
Isoxsuprine	High	High	High	High	High	High	High	High
Labetalol	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]	Low	Low
Lubabegron	Low	Low	Low	Low	Low	Low	Low	Low
Mabuterol	Low	Low	Low	Low	Low	Low	Low	Low
Mapenterol	Low	Low	Low	Low	Low	Low	Low	Low
Metoprolol	High	High	High	High	High	High	High[#2]	High[#2]
Orciprenaline (Metaproterenol)	Low	Low	Low	Low	Low	Low	Low	Low
Phenylethanol amine A	Low	Low	Low	Low	Low	Low	Low	Low
Pirbuterol	Low	Low	Low	Low	Low	Low	Low	Low
Procaterol	Low	Low	Low	Low	Low	Low	Low	Low
Ractopamine	High	High	High	High	High	High	High	High
Ritodrin	Low	Low	Low	Low	Low	Low	Low	Low
Salbutamol (Albuterol)	High	High	High	High	High	High	High[#1]	High[#1]
Salmeterol	Low	Low	Low	High[#1]	Low	Low	Low	Low
Sotalol	High	High	High	High	High	High	High[#1]	High[#1]
Terbutaline	High	High	High	High	High	High	High[#1]	High[#1]
Tulobuterol	High	High	High	High	High	High	Low	Low
Zilpaterol	High	High	High	High	High	High	High	High

#: These substances have a high priority because:

1) Products were found online, but no FDA approvals or EU registrations were found

2) FDA approvals or EU registrations were found, but use in the animal species is unlikely

If no non-compliant findings were found at Q1 or Q1 was answered unknown (U), Q3 required further evaluation based on FDA approved products, EU registered products for companion animals and (online) availability. This resulted in positively answering Q3 ('Y') for isoxsuprine, ractopamine and zilpaterol in poultry and egg. In some cases, products were found online but no FDA approvals or EU registrations were found, and monitoring data were missing. This resulted in a conclusion of unknown ('U') for Q3. This was the case for isoprenalin and labetalol in bovine, porcine, horse, sheep goat and milk, for formoterol and salmeterol in horse and for salbutamol, sotalol and terbutaline in poultry and egg. Additionally, Q3 was answered as 'U' for metoprolol in poultry and egg, since a registration in the EU was found for companion animals and the availability and potential use was unlikely. All these substances were subject to Q2 - is a human health risk due to residues of this substance scientifically proven to be absent or negligible. A proviso (#) was added to these substances to indicate that this priority was due to the fact that the substances were found online although no FDA/EU registrations were found (#1) or registered products were found, but use in the animal species was seen as unlikely (#2).

Beta-agonists are prohibited to be used in the EU, while use is allowed in other countries like the USA, Canada, Japan or Mexico (EFSA, 2009b). The EU decided to prohibit the use of beta-agonists because of human health concerns (Centner and Petetin, 2018). Adverse effects, like increase in heart rate and blood pressure in humans have been observed in toxicology studies after exposure to zilpaterol, ractopamine and other beta-agonists (Baynes et al., 2016). However, there are no reported cases of adverse effects in humans exposed to animal products containing residues of zilpaterol or ractopamine. EFSA concluded on the evaluation of ractopamine that there was no human study available to correctly derive an ADI for ractopamine residues (EFSA, 2009b). Therefore, for EU regulation, it was concluded that no MRL could be calculated and, thus, residues in animal products are unacceptable. EFSA also performed an evaluation for zilpaterol and concluded that the risk assessment of JECFA on zilpaterol was scientifically robust. However, is was noted that the approved withdrawal period of 2-4 days could be insufficient to protect consumers (EFSA, 2016c). As a result of the evaluations, Q2 was negatively answered for all beta-agonists for which Q2 needed to be answered. These substances were subsequently classified as 'high priority'.

For the remaining substances, no products were approved by the FDA, no registrations were found for companion animals in the EU and no products were found online. Thus, these resulted in a low priority.

3.6 Group A2 prohibited substances

3.6.1 List of substances

This group comprises the substances included in Table 2 of the Annex of Regulation (EU) 37/2010, the former 'A6 substances'. Originally, chloroform was also in this list, but this substance was moved to Table 1 (under the provision 'only to be used as an excipient in vaccines') ensuing Regulation (EU) 19/2014. Although two non-compliances were reported for chloroform in milk in 2013, this substance was not included in the current evaluation, since it is known that the substance can originate from cleaning and disinfection procedures, and it is unlikely to have originated from unauthorised administration to dairy cows. Nitrofurans are included in Table 2 as a group, and were further specified into: furaltadone, furazolidone, nitrofurazone, nitrofurantoin and nifursol. Since these substances are rapidly metabolized and occur in animal tissues as protein-bound metabolites, monitoring is aimed at their side-chains that can be released from these protein-bound metabolites: AMOZ, AOZ, SEM, AHD, DNSH.

3.6.2 Results of the prioritisation

In total, 13 prohibited substances indicated in group A2 of Regulation (EU) 2017/625 were evaluated according to decision tree I for unauthorised substances. An overview of the prioritisation is given in Table 8 and a more detailed overview of the results is provided in Annex 6.

Table 8 *Prioritisation of prohibited substances (group A2) per animal product using decision tree I*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
AHD (nitrofurantoin)	High	High	High	High	High	High	High	High
AMOZ (furaltadone)	High	High	High	High	High	High	High	High
AOZ (furazolidone)	High	High	High	High	High	High	High	High
Aristolochia spp. and preparations thereof (aristolochic acids)	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Chloramphenicol	High	High	High	High	High	High	High	High
Chlorpromazine	Low	High#1	Low	High#1	High#1	High#1	High#1	High#1
Colchicine	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Dapsone	Low	Low	Low	High#1	High#1	High#1	High#1	High#1
Dimetridazole	High	High	High	High	High	High	High	High
DNSH (Nifursol)	Low	High#1	Low	High#1	High#1	High#1	Low	Low
Metronidazole/hydroxy-metronidazole	High	High	High	High	High	High	High	High
Ronidazole	High	High	Low	Low	High	High	Low	Low
SEM (nitrofurazone)	High	High	High	High	High	High	High	High

#: These substances have a high priority because:

1) Products were found online, but no FDA approvals or EU registrations were found

Non-compliances for nitrofurans (except nifursol/DNSH) and chloramphenicol were reported for all major species, except for AHD in bovine but this substance was reported in milk. For the minor species, i.e. horse, goat and sheep, Q1 had to be answered with unknown (U) for nitrofurans because of their very limited representation in the NRCP. Only chloramphenicol in sheep was included in sufficient numbers in the NRCP, but for this animal species-substance combination the answer to Q1 was already Y because of non-compliances reported by EFSA. The negative answer to Q2 - is a human health risk due to residues of this substance scientifically proven to be absent or negligible - is evident, since these substances are prohibited because of human health concerns. As a result, the nitrofurans (except DNSH) and chloramphenicol end up as high priority substance in all animal species/products.

For metronidazole and dimetridazole, non-compliances were reported in porcine and poultry products and they consequently end up with a high priority for these animal species since human health risks in group A2 cannot be excluded (Q2). For the remaining animal species/products (except milk), the same conclusion arises from the positive answer to Q3, because non-compliances are reported in related species. For some animal species, ronidazole is only monitored in limited amounts (<10/year) in the NRCP and the answer to Q1 is therefore 'U'. However, the availability (both for companion animals and online) yields a Y to Q3, resulting in a high priority classification, while for the animal species/ products for which monitoring data are available, the priority is low because of the absence of non-compliant results.

For the remaining substances (Aristolochia, chlorpromazine, colchicine and dapsone), no non-compliances were reported, but monitoring for these substances is absent or too limited for the majority of the animal product/substance combinations, yielding a classification high#1. The animal products for which monitoring is adequate received a low priority.

3.7 Pesticides and biocides (Group A3b)

3.7.1 List of substances

The information specified in section 2.2 was used to establish an initial list of substances. Six of the 8 substances indicated in the EURL guidance document (EURL, 2020b) were evaluated previously within the group of antiparasitics not authorised for use in livestock animals (van Asselt et al., 2019, 2020). The remaining two, dinotefuran and fenthion, were added to the current list of substances. Famphur was added to the list since this is an organophosphate approved for use in animal feed in the US. Dichlorvos, fenvalerate, fluvalinate, malathion, propetamphos and trichlorfon were added because

Chinese authorities established MRLs for these substances in animal tissues (Ministry of Agriculture and Rural Affairs of China et al., 2019), which suggests they are used as veterinary pharmaceuticals. Finally, nicotine was added, since non-compliances were reported by Germany for poultry and eggs and it is a known substance for treatment of red poultry mites in layers.

3.7.2 Results of the prioritisation

In total, 10 pesticides were evaluated according to decision tree I for unauthorised substances. An overview of the prioritisation is given in Table 9 and a more detailed overview of the results is provided in Annex 7.

Table 9 *Prioritisation of pesticides per animal product using decision tree I*

Substance	Bovine	Milk	Porcine	Horse	Goat[3]	Sheep	Poultry	Eggs
Dichlorvos	Low	Low	Low	Low	High	Low	Low	Low
Dinotefuran	Low	Low	Low	Low	High	Low	Low	Low
Famphur	Low	Low	Low	Low	Low	Low	Low	low
Fenthion	Low	Low	Low	Low	High	Low	Low	Low
Fenvalerate	Low	Low	Low	Low	Medium	Low	Low	Low
Fluvalinate	Low	Low	Low	Low	Medium	Low	Low	Low
Malathion (maldison)	Low	Low	Low	Low	Medium	Low	Low	Low
Nicotine	Low	Low	Low	Low	Low	Low	High	High
Propetamphos	Low	Low	Low	Low	High	Low	Low	Low
Trichlorfon (metrifonate)	Low	Low	Low	Low	High	Low	Low	Low

3) medium or high priority due to a lack of monitoring data although related species result in a low priority

The only non-compliances in this category are reports of nicotine in poultry and egg, yielding a Y for Q1. For this substance, Q2 had to be answered - is a human health risk due to residues of this substance scientifically proven to be absent or negligible.

All substances except famphur are included in pesticide monitoring of animal products, but no further non-compliances were observed. Only monitoring data concerning goat were too limited to justify a solid answer, so for goat, Q1 was answered with U for all substances, while for the other animal species/products the answer to Q1 was N. Q3 - are there indications for use of this substance in production systems for food producing animals – was evaluated for these substances. Since obviously no non-compliances were reported in related species, the answer to Q3 is N for all species except goat, and they end up with low priority. For goat, additional questions underlying Q3 were answered.

For nicotine in poultry and eggs and for most of the substances in goat, Q2 (is a human health risk due to residues of this substance scientifically proven to be absent or negligible) needed to be answered. Opinions of EFSA do provide sufficient data to show that health risks due to residues of fenvalerate, fluvalinate and malathion in goat products are proven to be absent or negligible. Feeding and metabolisms studies of esfenvalerate (fenvelarate is the residue to be monitored) were available and possible residues in products of animal origin were calculated. EFSA concluded that the margin of safety was large enough in the consumer risk assessment (EFSA, 2014a). Metabolism studies for tau-fluvalinate were available in lactating goats. Feeding studies were used to derive an MRL, the MRL for goat is fully supported by data and no risks for consumers were identified (EFSA, 2018b). For malathion, EFSA concluded that it is rapidly and completely metabolised in animals. No malathion or possible metabolites are expected to occur in edible animal products (EFSA, 2014b). Therefore, Q2 is positively answered for fenvalerate, fluvalinate and malathion and these substances are classified as 'medium priority' for goat. Official opinions by EFSA and other authorities do not provide sufficient data to show that health risks due to residues of dichlorvos, dinotefuran, famphur, fenthion, nicotine propetamphos and trichlorfon in goat products are proven to be absent or negligible (FAO, 1965; EMA, 1999; JMPR, 2000; EFSA, 2006a, 2006b, 2009a; JMPR, 2012; WHO, 2019b). This was also the case for nicotine regarding poultry and eggs. Therefore, Q2 is negatively answered for these pesticides and these substances are classified as 'high priority'.

3.8 Antimicrobial substances (Group A3c)

3.8.1 List of substances

The information specified in section 2.2 was used to establish an initial list of substances. The only substances indicated in the EURL guidance document (EURL, 2020b) are carbadox and olaquindox, which have a history of use as antimicrobial growth promoter. Literature suggests that the related substances mequindox, quinocetone and cyadox are also either used or explored for in-feed application, so these were added to the list. Furthermore, clindamycin, cefadroxil, cefovecin, pradofloxacin and orbifloxacin were included on the list because of their Dutch registrations for companion animals. Antimicrobials indicated in (EU) 122/2013 (comprising the list of substances essential for treatment of equidae) were added; this concerned azithromycin, ticarcillin, amikacin, ofloxacin and griseofulvin. Additional antimicrobials were selected from the US Code of Federal Regulations Title 21 – Part 558, which contains a list of animal drugs for use in animal feeds. This led to the inclusion of efrotomycin, hygromycin b and nystatin. Enramycin (enduramycin), kitasamycin (leucomycin), destomycin, sedecamycin and hainanmycin were derived from the Chinese national food safety standard (Ministry of Agriculture and Rural Affairs of China et al., 2019) comprising permitted premixes. The potential list of other (human) antibiotics is immense, so to select for antibiotics potentially used in food producing species, the WHO AWaRe list of antibiotics (WHO, 2018) was used as a basis. The substances from this list were searched in Google in combination with 'veterinary' in order to evaluate their availability as veterinary product. This additionally yielded gatifloxacin, levofloxacin, lomefloxacin, moxifloxacin, norfloxacin, ofloxacin, pazufloxacin, cefixime, cefotaxime, ceftriaxone, piperacillin and fosfomycin, which were subsequently added to the list for evaluation.

3.8.2 Results of the prioritisation

In total, 34 antimicrobials were evaluated according to decision tree I for unauthorised substances. An overview of the prioritisation is given in Table 10 and a more detailed overview of the results is provided in Annex 8.

The evaluation of this category of substances is hampered by the sparse monitoring data. Within the NRCP, only the monitoring of carbadox and olaquindox in swine is included. Since no non-compliant reports were found, Q1 is answered with N for these substances in porcine. The only substance for which Q1 was answered with Y is azithromycin based on a RASFF alert in poultry. For all remaining substances, Q1 was answered with U for each animal product. As a consequence, Q3 had to be addressed for all substances.

Table 10 *Prioritisation of antimicrobials per animal product using decision tree I*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
Amikacin	High	High	High	High	High	High	High	High
Azithromycin	High	High	High	High	High	High	High	High
Carbadox	High#2	High#2	High	High#2	High#2	High#2	High	High
Cefadroxil	High#2	High#2	High#2	High#2	High#2	High#2	High#2	High#2
Cefixime	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Cefotaxime	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Cefovecin	High#2	High#2	High#2	High#2	High#2	High#2	High#2	High#2
Ceftriaxone	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Clindamycin	High#2	High#2	High#2	High#2	High#2	High#2	High#2	High#2
Cyadox	Low	Low	Low	Low	Low	Low	Low	Low
Destomycin	High#2	High#2	High	High#2	High#2	High#2	High	High
Efrotomycin	Low	Low	Low	Low	Low	Low	Low	Low
Enramycin / Enduramycin	High#2	High#2	High	High#2	High#2	High#2	High	High
Fosfomycin	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Gatifloxacin	Low	Low	Low	Low	Low	Low	Low	Low
Griseofulvin	High#2	High#2	High#2	High	High#2	High#2	High#2	High#2
Hainanmycin	High#2	High#2	High	High#2	High#2	High#2	High	High
Hygromycin b	High#2	High#2	High	High#2	High#2	High#2	High	High
Leucomycin / Kitasamycin	High#2	High#2	High	High#2	High#2	High#2	High	High
Levofloxacin	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Lomefloxacin	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Mequindox	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Moxifloxacin	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Norfloxacin	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Nystatin	High	High	High	High	High	High	High	High
Ofloxacin	High	High	High	High	High	High	High	High
Olaquindox	High	High#2	High	High#2	High#2	High#2	High	High
Orbifloxacin	High#2	High#2	High#2	High#2	High#2	High#2	High#2	High#2
Pazufloxacin	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Piperacillin	High#1	High#1	High#1	High#1	High#1	High#1	High#1	High#1
Pradofloxacin	High#2	High#2	High#2	High#2	High#2	High#2	High#2	High#2
Quinocetone	Low	Low	High#1	Low	Low	Low	High#1	High#1
Sedecamycin	High#2	High#2	High	High#2	High#2	High#2	High	High
Ticarcillin	High#2	High#2	High#2	High#2	High#2	High#2	High#2	High#2

#: These substances have a high priority because:

1) Products were found online, but no FDA approvals or EU registrations were found

2) FDA approvals or EU registrations were found, but use in the animal species is unlikely

Several additional assumptions underlie the answering of Q3. As indicated in 3.8.1, this list contains substances for which VMPs are available for companion animals (essentially cats and/or dogs) in the Netherlands, so accessibility to these substances is relatively easy. Similarly, the antimicrobials indicated in (EU) 122/2013 (comprising the list of substances essential for treatment of equidae) were assumed to be relatively accessible. An additional factor was the availability of distinct VMPs for food producing species at online marketplaces. If this was the case (for amikacin, azithromycin, nystatin and ofloxacin), Q3 was answered with Y, and the substance was subject to Q2. Gatifloxacin's primary availability is as eyedrops for companion animals (and humans). Since indications for use in food producing species was limited to a single product (a combination with amikacin), Q3 was answered with N, yielding a low priority. Two additional substances (griseofulvin and ticarcillin) are indicated in (EU)122/2013, but since online VMP availability was unlikely (no VMPs found that are directly applicable for food producing species except for horse), for these substances Q3 was answered with Y for horse only. For the remaining species, Q3 was qualified U(nlikely), yielding a priority with a proviso (#2: unlikely use in the animal species). Cefadroxil, cefovecin, clindamycin, orbifloxacin and pradofloxacin were included in the evaluation because of their Dutch registrations for companion animals. Since no indications were found for their application in food producing species, Q3 was answered with U(nlikely) for all species, yielding a priority with #2. For cefixime, cefotaxime,

ceftriaxone, fosfomycin, levofloxacin, lomefloxacin, moxifloxacin, norfloxacin, pazufloxacin and piperacillin, on the other hand, the only indication for use (Q3) was the availability of distinct VMPs for food producing species on online marketplaces. These substances were given a priority with a proviso #1 for all species, indicating that data are limited but products are available.

For substances for which the (main) application is as a feed additive/growth promoter (carbadox, destomycin, efrotomycin, enramycin, hainanmycin, hygromycin, leucomycin, mequindox, nystatin, olaquindox, sedecamycin and quinocetone), bulk availability in e-commerce is considered a relevant factor, as well as the approval as a feed additive outside Europe. For most of the substances used as feed additive, the primary target species is/are known (usually chicken and pigs) and taken into account, resulting in a U(nlikely) qualification for the remaining species with respect to Q3, yielding a prioritisation with a proviso (#2). For the target species, Q3 is answered with Y. For mequindox, nystatin and quinocetone, additional considerations yielded a different outcome. Besides their application as a feed additive, mequindox and nystatin are also online available as VMP. Although mequindox has been mentioned in literature as feed additive, it currently lacks formal approval as a feed additive, yielding a priority with #1 for all species. For nystatin, Q3 was answered with Y for all species since this substance is approved outside the EU and has registered products within the EU for companion animals. Quinocetone is a quinoxaline related to carbadox and olaquindox. Although online availability suggests it is an accepted substance, no indication of its approval for use in food producing species outside the EU was found. As a consequence, Q3 for this substance was answered with U for the target species (pigs and chicken) and N for the other species, yielding a final classification with a proviso #1 and low, respectively. Cyadox is also related to carbadox and olaquindox. It is suggested to be safer than the former two and a series of recent publications (a.o. (Yan et al., 2017; Huang et al., 2018)) suggest that its application as a VMP in food producing species is under investigation in China. However, so far, no indications of availability as either feed additive nor VMPs were found, so Q3 was answered N for all species, yielding a low priority.

Substances that yielded a Y or U in Q3 were subject to Q2 - is a human health risk due to residues of this substance scientifically proven to be absent or negligible. With respect to the antimicrobial resistance (AMR) risk, in principle the same criteria apply as in the evaluation of the authorised antibiotics in the previous reports (van Asselt et al., 2019, 2020), where this was addressed by answering the question (Q1 in decision tree 3) "Is this an essential antimicrobial for humans?". In the previous reports, we used the WHO prioritisation (WHO, 2017) to identify the 'highest priority critically important' (HPCI) antimicrobials for human health. Meanwhile, however, the EMA Antimicrobial Advice Ad hoc Expert Group (AMEG) published an updated categorisation, which was used in the current evaluation in order to assess possible human health risks (EMA, 2019). This categorisation is based on their risk to public health due to resistance development following use in animals.

The AMEG categorised antibiotics in four different categories related to the impact on human health (EMA, 2019):

- Category A: avoid. These antimicrobials are currently not authorised in VMPs in the EU. They may not be used in food producing species and only in exceptional cases to companion animals (including horses not intended to be used for human consumption).
- Category B: restrict. These are antimicrobials used as veterinary drug where the risk for public health is estimated to be higher than for category C and D, since they are critically important in human medicine. Use in animals should thus be restricted.
- Category C: caution. This has been added as an intermediate category. For substances in this category, there are in general alternatives available in human medicine but there are only a few alternatives in veterinary medicines. The substances, however, should only be used when there are no antimicrobial substances in Category D that are clinically effective.
- Category D: prudence. This is the lowest risk category. The risk to public health is considered to be low. These substances are recommended as first line treatments.

It should be noted that the categorisation is based on antibiotic classes and not on individual substances. Ticarcillin, fosfomycin, and piperacillin can be categorised as AMEG category A. Fluroquinolones (levofloxacin, lomefloxacin, moxifloxacin, norfloxacin, ofloxacin, orbifloxacin, pazufloxacin, and pradofloxacin) and third and fourth generation cephalosporins (cefixime, cefotaxime,

cefovecin and, ceftriaxone) all belong to AMEG category B. Cefadroxil, a 1st generation cephalosporin, the aminoglycosides amikacin, destomycin and hygromycin b and the macrolides azithromycin, clindamycin, leucomycin / kitasamycin, nystatin and sedecamycin fall into AMEG category C (EMA, 2019). The classifications as A, B or C mean that it cannot be concluded that a risk for human health is proven to be absent or negligible. Therefore, Q2 is negatively answered for these substances and they are classified as 'high priority'.

Some substances fall outside the antimicrobial classes AMEG evaluated. For these, literature and EFSA/JECFA opinions were consulted to obtain additional information on possible human health risks. The quinoxaline 1,4-di-*N*-oxides, carbadox, mequindox, olaquindox and quinocetone are prohibited to be used in the EU, because of among others their genotoxic properties, quinocetone is less genotoxic, however, conflicting results are published (Cheng et al., 2016). Therefore, Q2 is negatively answered for these substances and they are also classified as 'high priority'. No information in official opinions has been found regarding enramycin, griseofulvin and hainanmycin, besides the fact that they are not allowed to be used in the EU. Therefore, Q2 is answered with unknown, and therefore these substances are classified as 'high priority'.

3.9 Unauthorised coccidiostats and histomonostats (Group A3d)

3.9.1 List of substances

The list provided by the EURL guidance document comprises 19 substances, which were included in the evaluation. Among these are several nitroimidazoles. These belong to the same chemical class as metronidazole, dimetridazole and ronidazole, which are prohibited (A2) substances. The substances 2-[3,5-Dichloro-4-[(4-chlorophenyl)methyl]phenyl]-1,2,4-triazine-3,5(2H,4H)-dione, 3-Amino-2-methyl-5 nitrobenzamide and simeton were excluded from the evaluation, since they are irrelevant as VMP. Although clazuril is specified in the EURL guidance document under group A3d, it was decided to evaluate this substance under group B2 (authorized coccidiostats), since it is included in Regulation (EU) 37/2010. Additional to the substances listed in the EURL guidance document, azanidazole and propenidazole were included, since they are additional nitroimidazoles mentioned under ATCvet code QP51AA, suggesting they may be used in veterinary medicine. Buparvaquone and parvaquone were added because they are the primary treatment for Theileriosis. Aklomide, roxarsone, carbason, nitarsone, arsanilic acid, sulfanitran, ormethoprim and laidlomycin were included because they are, or were until recently, used as a feed additive in the US. Two more substances were retrieved from the Chinese MRL list (Ministry of Agriculture and Rural Affairs of China et al., 2019): diminazene and isometamidium. Isometamidium is also included in the list of substances essential for treatment of equidae in Regulation (EU) 122/2013, which additionally indicates pyrimethamine as antiprotozoal agent.

3.9.2 Results of the prioritisation

In total, 30 unauthorised coccidiostats and histomonostats (antiprotozoals) were evaluated according to decision tree I. An overview of the prioritisation is given in Table 11 and a more detailed overview of the results is provided in Annex 9.

Similar to the A3c -antimicrobials category, these substances are largely outside the regular monitoring scope of the EU authorities, essentially because they have never been approved for use in food producing species. As a consequence, very limited monitoring data are available for the evaluation. The only substances for which non-compliances were reported, are clopidol and ipronidazole. Clopidol was found in multiple import poultry products originating from outside Europe (RASFF reports). As a consequence, Q1 was answered Y for poultry. Monitoring currently is limited to poultry, so for the other species Q1 was answered with U. For eggs, Q3 was subsequently answered with Y because of the non-compliance in poultry; for the other species, the use of this substance seems less likely. Q3 was therefore answered with U, yielding a priority with a proviso (#2: unlikely

use in the animal species). Ipronidazole was found in pig (reported by the Czech Republic in 2013) yielding a positive answer for Q1. For other mammals, Q3 was subsequently answered with Y. However, online availability appears to be non-existent, so an additional reservation was made with respect to this outcome. For milk, poultry and egg, Q3 was answered with N, yielding a low priority for these species. Ternidazole is the only other substance included in the Dutch monitoring, since it is included in the scope of the method targeting nitroimidazoles. However, similar to ipronidazole, online availability appears to be virtually absent, and Q3 was answered with N for all species, yielding a low priority.

Table 11 *Prioritisation of unauthorised coccidiostats per animal product using decision tree I*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
Aklomide	Low	Low	Low	Low	Low	Low	Low	Low
Arprinocid	Low	Low	Low	Low	Low	Low	Low	Low
Arsanilic acid	High[#2]	High[#2]	High	High[#2]	High[#2]	High[#2]	High	High
Azanidazole	Low	Low	Low	Low	Low	Low	Low	Low
Buparvaquone	High	High	High[#2]	High	High	High	High[#2]	High[#2]
Buquinolate	Low	Low	Low	Low	Low	Low	Low	Low
Carbasone	Low	Low	Low	Low	Low	Low	Low	Low
Carnidazole	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High	High
Clopidol/meticlorpindol	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High	High
Diaveridine	High	High	High	High	High	High	High	High
Diminazene	High	High	High[#2]	High	High	High	High[#2]	High[#2]
Dinitolmide (Zoalene)	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High	High
Ethopabate	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High	High
Ipronidazole	High[3]	Low	High[3]	High[3]	High[3]	High[3]	Low	Low
Isometamidium	High	High	High[#2]	High	High	High	High[#2]	High[#2]
Laidlomycin	High	High	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]
Nequinate (Methylbenzoquate)	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High	High
Nimorazole	Low	Low	High[#1]	Low	Low	Low	High[#1]	High[#1]
Nitarsone	Low	Low	Low	Low	Low	Low	Low	Low
Nitromide	Low	Low	Low	Low	Low	Low	Low	Low
Ormetoprim	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High	High
Ornidazole	High	High	High	High	High	High	High	High
Parvaquone	High	High	High[#2]	High	High	High	High[#2]	High[#2]
Propenidazole	Low	Low	Low	Low	Low	Low	Low	Low
Pyrimethamine	High[#2]	High[#2]	High[#2]	High	High[#2]	High[#2]	High	High
Roxarsone	High[#2]	High[#2]	High	High[#2]	High[#2]	High[#2]	High	High
Secnidazole	Low	Low	Low	Low	Low	Low	High[#1]	High[#1]
Sulfanitran	Low	Low	Low	Low	Low	Low	Low	Low
Ternidazole	Low	Low	Low	Low	Low	Low	Low	Low
Tinidazole	High	High	High	High	High	High	High	High

#: These substances have a high priority because:

1) Products were found online, but no FDA approvals or EU registrations were found

2) FDA approvals or EU registrations were found, but use in the animal species is unlikely

[3] High priority because of non-compliance in pig in 2013. However, the product is not available on the internet

Both ipronidazole and ternidazole belong to the nitroimidazoles (note: dimetridazole, metronidazole and ronidazole are included in the prohibited substances list A2), a group of substances used for therapeutic treatment against a broad range of protozoal and bacterial infections. Although they are prohibited for use in food-producing animals, several substances are readily available for companion animals and as human medicines. Despite their ATCvet codes, azanidazole and propenidazole don't seem to be available any longer, yielding a low priority for all species. Ornidazole and tinidazole on the other hand were commonly found in VMP, often applied in combination with fluoroquinolone antibiotics. Products targeting all food producing species were found, so Q3 was answered Y for all species. Carnidazole has a veterinary registration for pigeons in the Netherland and is available online

in bulk as well, so Q3 was answered with Y for poultry and egg, while for the other animal species, the application was considered unlikely. Nimorazole was found to be available in bulk, but since no other veterinary products were found, its potential application would be limited as feed additive for pig and poultry, yielding a low priority for the other species. Secnidazole is offered as products for human use, pigeons and cats/dogs, resulting in a low priority for all species except poultry/egg.

The majority of the remaining substances in the list are primarily used as a feed additive, either to prevent or fight coccidiae or other parasites, often indicated as 'growth-promoters'. For these substances, bulk availability in e-commerce is considered a relevant factor, as well as the approval as a feed additive outside Europe. For most of the substances used as feed additive, the primary target species is/are known (usually pigs and chicken) and taken into account, resulting in a U(nlikely) qualification for the remaining species with respect to Q3, yielding a priority with a proviso (#2). For the target species, Q3 is answered with Y. This applies to dinitolmide, ethopabate, nequinate, ormethoprim and pyrimethamine, which are used against coccidiosis in poultry. Pyrimethamine also resulted in a positive answer for Q3, since it is indicated in (EU) 122/2013 (comprising the list of substances essential for treatment of equidae). Diminazene, isometamidium and laidlomycin on the other hand target protozoal issues in bovine/ruminant species, so Q3 was answered positively for these substances in bovine and milk and resulted in a proviso #2 for poultry and pig.

Several formerly approved feed additives seem to have completely vanished from the market. This applies to aklomide, arprinocid, buquinolate, carbasone, nitarsone, nitromide and sulfanitran. Because of the lack of online availability of these substances, Q3 is answered with N for all species, yielding a low priority.

Carbasone and nitarsone belong to a group of organoarsenic substances, which also includes Arsanilic acid and roxarsone, applied as feed additives for growth promotion in poultry and pigs outside Europe. Concerns regarding the *in vivo* transfer of organoarsenic into the much more toxic inorganic form prompted the phasing out of these substances in the US around 2010, but in Asia, arsanillic acid and roxarsone are still used. For these substances, Q3 was answered Y for the target species, while for the other species, Q3 was answered with U, resulting in a priority high#2.

Buparvaquone and parvaquone are antiprotozoal drugs against Theileriosis, a disease transmitted by ticks, essentially affecting mammalian hosts. Buparvaquone and parvaquone have been used since the '80s, but were primarily applied in non-western countries. The disease is however emerging in Australia and New Zealand and registration of buparvaquone is currently under consideration. Q3 was thus answered Y for these substances for all ruminant species and horse.

Diaveridine is a folic acid antagonist used as synergist with sulphonamides, primarily used as an antiprotozoal, whereas trimethoprim/sulphonamide combinations are more commonly used as antibacterial treatment. The target animal range is broad, so Q3 was answered Y for all species.

Substances that yielded a Y or U in Q3 were subject to Q2 - is a human health risk due to residues of this substance scientifically proven to be absent or negligible. The coccidiostats arsanillic acid and roxarsone are arsenic species, arsenic is known for its adverse effects in humans (EFSA, 2009c). Therefore, Q2 is answered negatively for these substances, resulting in 'high' priority of these two substances in all species. The nitroimidazoles, ornidazole and tinidazole have antibacterial, antiprotozoal and anticoccidial properties, so placing them in A3d is a bit arbitrary. They are authorised for companion animals only. Other nitroimidazoles are placed in the A2 group of substances, which are not authorised. No official reports of authorities are available showing sufficient data that health risks due to residues of ornidazole and tinidazole are proven to be absent or negligible. Therefore, they are classified as 'high priority'. No official reports of authorities are available showing sufficient data that health risks due to residues of the remaining coccidiostats, for which Q2 needed to be answered, are proven to be absent or negligible. Therefore, all remaining coccidiostats for which Q2 needed to be answered are also classified as 'high priority'.

3.10 Protein and peptide hormones (Group A3e)

3.10.1 List of substances

The information specified in section 2.2 was used to establish an initial list of substances. The included substances are part of the growth hormone secretagogue (GHS) or insulin-like growth factor (IGF) class. GHSs induce endogenous production and secretion of growth hormone (GH). GHS include GF-releasing hormone (GHRH), GHRH analogous and GH-releasing peptides (GHRPs). IGFs are proteins with high sequence similarity to insulin and they regulate many of the growth-promoting actions of GH.

3.10.2 Results of the prioritisation

In total, 14 protein and peptide hormones were evaluated according to decision tree I for unauthorised substances. An overview of the prioritisation is given in Table 12 and a more detailed overview of the results is provided in Annex 10.

Table 12 *Prioritisation of protein and peptide hormones for all animal species/products using decision tree I*

Substance	Bovine and milk	Other species
GHRP-1	Low	Low
GHRP-2	High[#1]	High[#1]
GHRP-4	Low	Low
GHRP-5	Low	Low
GHRP-6	High[#1]	High[#1]
hexarelin (examorelin)	High[#1]	High[#1]
ipamorelin	High[#1]	High[#1]
IGF-1	High[#1]	High[#1]
IGF-2	High[#1]	High[#1]
Des1-3-IGF-1	High[#1]	High[#1]
R3-IGF-1	Low	Low
Long-R3-IGF-1	High[#1]	High[#1]
Des1-10-Long-R3-IGF-1	Low	Low
recombinant bovine somatotropin (rBST)	Medium	High[3]

#: These substances have a medium/high priority because:

1) Products were found online, but no FDA approvals or EU registrations were found

2) FDA approvals or EU registrations were found, but use in the animal species is unlikely (not applicable for this group of substances)

[3] approved by FDA to increase milk production, so more likely to be found in bovine and milk-producing animals

Q1 was evaluated based on KAP data, RASFF notifications and EFSA annual reports on national monitoring results. However, no non-compliant residue data were found for the animals and animal products studied. The 14 substances are currently not yet included in national monitoring data. Therefore, Q1 was answered with unknown (U) for all evaluated proteins and peptide hormones.

All substances were, therefore, further subjected to Q3 – are there indications for use of this substance in production systems for food producing animals as indicated in section 2.3. Since no monitoring data were available for any of the animal species/products studied, Q3 was answered for all animal species combined. Bovine somatotropin (rBST) is approved by the FDA to be used for increasing milk production in lactating dairy cows. Therefore, rBST was the only substance, which was answered positively for Q3. There were no registered products for companion animals in the EU. For some substances, only powders were found online that could be used for research purposes only. This was the case for GHRP-1, GHRP-4, GHRP-5 and R3-IGF-1. For these substances, Q3 was answered as N, subsequently resulting in a low priority. For the remaining substances, VMPs were found online resulting in an unknown answer for Q3.

Substances with a positive answer or 'unknown' answer in Q3 were subjected to Q2 (is a human health risk due to residues of this substance scientifically proven to be absent or negligible?) in order to classify them as of medium or high priority. rBST is approved in the US to be used to increase milk productions. NVWA-BuRO has evaluated the use of rBST in lactating cows. It has been concluded that there is no direct food safety risk when it will be applied according to FDA approved practices. The use of rBST is prohibited in the EU because of animal welfare and animal health (NVWA-BuRO, 2017). Therefore, Q2 can be positively answered for bovine and milk, and rBST can be classified as 'medium priority' for bovine and milk. While Q2 needs to be answered with unknown for the other species and egg, which results in a classification 'high priority' for the other species and egg.

No official evaluations in Europe or the US have been performed for GHRP-2, GHRP-6, hexarelin (examorelin), ipamorelin, IGF-1, IGF-2, des1-3-IGF-1, and long-R3-IGF-1. Therefore, Q2 is answered negatively, and these substances are classified as 'high priority' for all species.

3.11 Unauthorised sedatives (Group A3f)

3.11.1 List of substances

For group A sedatives, all sedatives which are mandatory and recommended by the EURL (azaperon/ azaperol, acepromazine, carazolol, haloperidol and propionyl promazine) were included in the evaluation. The EURL guidance document (EURL, 2020b) indicates benzodiazepines without further specification. Literature was consulted to determine which benzodiazepines and additional sedatives should be included in this evaluation. The substances added based on literature were; alprazolam (Apotheek faculteit Diergeneeskunde, 2018), diazepam, promazine, promethazine, triflupromazine (Flajs and MacNeil, 2016), droperidol, perphenazine, estazolam, nitrazepam and oxazepam (Wang, 2018). Midazolam was additionally added based on Regulation (EU) 122/2013 (the list of substances essential for treatment of equidae). Finally, all remaining sedatives were included that had a registration in the Netherlands for companion animals or animals not meant for consumption (CBG-MEB).

3.11.2 Results of the prioritisation

In total, 37 unauthorised sedatives were evaluated according to decision tree I. An overview of the prioritisation is given in Table 13 and a more detailed overview of the results is provided in Annex 11.

Table 13 *Prioritisation of unauthorised sedatives per animal product using decision tree I*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
Acepromazine	Low	High	Low	High	High	High	High[#2]	High[#2]
Alfaxalone	Low	Low	Low	Low	Low	Low	Low	Low
Alprazolam	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]	Low	Low
Apomorphine	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]
Buprenorphine	High	High	High	High	High	High	High[#2]	High[#2]
Clomipramine	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]
Dexmedetomidine	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]
Diazepam	High	High	High	High	High	High	High[#2]	High[#2]
Droperidol	Low	Low	Low	Low	Low	Low	Low	Low
Estazolam	Low	Low	Low	Low	Low	Low	Low	Low
Fentanyl	High	High	High	High	High	High	High[#2]	High[#2]
Fluoxetin	High	High	High	High	High	High	High[#2]	High[#2]
Haloperidol	Low	Low	Low	Low	Low	Low	Low	Low
Imepitoin	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]
Imipramine	High	High	High	High	High	High	High[#2]	High[#2]
Medetomidine	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]
Methadone	High	High	High	High	High	High	High[#2]	High[#2]
Midazolam	High	High	High	High	High	High	High[#2]	High[#2]
Mirtazepine	High	High	High	High	High	High	High[#2]	High[#2]
Nitrazepam	Low	Low	Low	Low	Low	Low	Low	Low
Oxazepam	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]	Low	Low
Pentobarbital	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]
Pergolide	High[#2]	High[#2]	High[#2]	High	High[#2]	High[#2]	High[#2]	High[#2]
Perphenazine	Low	Low	Low	Low	Low	Low	Low	Low
Phenobarbital	Low	Low	Low	High[#2]	Low	Low	Low	Low
Phenytoin	High[#2]	High[#2]	High[#2]	High	High[#2]	High[#2]	High[#2]	High[#2]
Promazine	Low	Low	Low	Low	Low	Low	Low	Low
Promethazine	High	High	High	High	High	High	High[#2]	High[#2]
Propionylpromazine	High	Low	High	High	High	High	Low	Low
Propofol	High[#2]	High[#2]	High[#2]	High	High[#2]	High[#2]	High[#2]	High[#2]
Ropinirole	High	High	High	High	High	High	High[#2]	High[#2]
Selegiline	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]	High[#2]
Sevoflurane	High[#2]	High[#2]	High[#2]	High	High[#2]	High[#2]	High[#2]	High[#2]
Tiletamine HCl	Low	Low	Low	High	Low	Low	Low	Low
Tramadol	High	High	High	High	High	High	High[#2]	High[#2]
Triflupromazine	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]	High[#1]	Low	Low
Zolazepam HCl	Low	Low	Low	High	Low	Low	Low	Low

#: These substances have a medium/high priority because:

1) Products were found online, but no FDA approvals or EU registrations were found

2) EU registrations were found for companion animals, but use in the animal species is unlikely

Firstly, Q1 regarding whether non-compliant residue data were found in the past five years was answered. The only non-compliances found were for propionyl promazine in porcine and for acepromazine in horse. Q1 was answered positively in these cases.

The unauthorized sedatives acepromazine, haloperidol and propionyl promazine are listed as necessary to monitor by the EURL (EURL, 2020b, 2020a), and thus have to be monitored by all EU member states. Therefore, for these substances, monitoring data were available in bovine and porcine, which showed no non-compliances in 2013-2018 for acepromazine and haloperidol. Q1 was, thus, answered negatively for these substances. Propionyl promazine showed a non-compliance in porcine reported by France in 2014 resulting in a positive answer for Q1. This non-compliance was seen as an indication of use for bovine, goat and sheep, answering Q3 positively.

Q1 was answered with 'unknown' in all other cases:
- For milk, poultry and egg, which are not monitored for all sedatives.
- For horse, sheep and goat, which had less than 10 samples monitored each year for the three substances named above.
- For all other unauthorised sedatives in this prioritisation, which are not monitored in any of the animal species.

When Q1 is answered negatively or unknown, Q3 regarding indications of use of the substance in food producing species needed to be answered. For bovine and porcine, acepromazine and haloperidol are monitored but were not found, answering Q3 negatively resulting in a low priority.

For milk, acepromazine, haloperidol or propionyl promazine were not found in bovine, sheep and goat. Acepromazine has a registration in the EU for dogs, cats and horses and is freely available online, thus, answering Q3 positively. Haloperidol and propionyl promazine do not have a registration for companion animals in the EU; haloperidol is only available as indistinct powder on Alibaba.com and propionyl promazine is not available online, answering Q3 negatively for both substances, which results in a low priority.

For horse, in case a substance was mentioned in the list of substances essential for treating horses (Regulation (EU) 122/2013), it was seen as available for use for this animal species. These substances are allowed to be used in horse if a withdrawal period of 6 months is taken into account. Furthermore, in case a registration was available for horse not meant for human consumption, this was also seen as a possible indication of use. In both cases availability was answered with 'Y'.

The following substances had the same outcome for bovine, milk, porcine, sheep and goat:
- Buprenorphine, diazepam, fentanyl, fluoxetine, imipramine, methadone, midazolam, mirtazapine, promethazine, ropinirole and tramadol have a registration in the EU for companion animals and are available online, answering Q3 positively.
- Afaxalone, Estazolam, nitrazepam, phenobarbital, tiletamine and zolazepam are not available for use on online marketplaces, answering Q3 negatively, resulting in a low priority. Droperidol, perphenazine and promazine do not have any registration for companion animals in the EU and are only available as indistinct powder on Alibaba.com, answering Q3 negatively, resulting in a low priority.
- Aprazolam, oxazepam and triflupromazine do not have any registration for companion animals in the EU, but are available online, answering Q3 as unknown based on a lack of monitoring data, resulting in the proviso #1 (i.e. products are available online, but no FDA/EU registrations were found).
- Apomorphine, clomipramine, dexmedetomidine, imepitoin, medetomidine, pentobarbital, pergolide, phenytoin, propofol, selegiline and sevoflurane have a registration for companion animals in the EU, but only have a indistinct powder as product available on Alibaba.com, answering Q3 as 'unknown', resulting in 'medium$^{\#2}$' or 'high$^{\#2}$' priority due to a lack of monitoring data and an unlikely use in these animal species.

For poultry and egg, there was no indication of use for the substances alfaxalone, alprazolam, droperidol, estazolam, haloperidol, nitrazepam, oxazepam, perphenazine, phenobarbital, promazine, propionyl promazine, tiletamine, triflupromazine and zolazepam. Q3 was answered negatively for these substances, resulting in a low priority. The use of unauthorised sedatives in poultry and egg is more unlikely compared to other animal species and not many examples of use are known. Therefore, in case a product was available on the market, Q3 was answered unknown since the product was assumed not relevant to apply. In the case only an indistinct powder was available, Q3 was also answered unknown, resulting in both cases in a priority with proviso #2 (i.e. EU registrations were found for companion animals, but use is unlikely).

All substances with positive answers for Q1 and positive or unknown answers for Q3 were subject to Q2 - is a human health risk due to residues of this substance scientifically proven to be absent or negligible? Many of the substances on the list of sedatives of which Q2 needs to be answered are sedatives only approved in companion animals, such as cats, dogs or horses (not used for human consumption). For these substances, no official opinions are available evaluating possible human

health risks due to consumption. For the use of propionyl promazine, human health risks were shown (JECFA, 1991). Some of the substances approved in companion animals and other substances in the list of sedatives for which Q2 needed to be answered are substances (also) used as human medicines. However, these human medicines are only available by prescription of a medical doctor. Health risks due to residues of human medicines in animal products are not proven to be absent or negligible. Furthermore, apomorphine and buprenorphine are both withdrawn of the marketing authorisation in the EU (EMA, 2004, 2016). Therefore, for all listed sedatives for which Q2 needed to be answered, Q2 is negatively answered and these substances are classified with 'high priority'.

3.12 Insecticides (Group B1b)

3.12.1 List of substances

All group B substances were taken from Table 1 of Regulation (EU) 37/2010. In the current (draft) version of the Annex of Regulation (EU) 2017/625 (2.0 SANTE 2017 11987 Annex rev5), group B1b is defined as: 'Insecticides, fungicides, anthelmintics and anti-parasite agents'. The only relevant fungicide in Regulation (EU) 37/2010 is enilconazole. This substance is included 'For topical use only' and No MRL required and thus was not evaluated. Miconazole and ketoconazole are two fungicides that can be used in horses according to Regulation (EU) 122/2013, but since these are not in Regulation (EU) 37/2010, they were not included. Antiparasitics (including insecticides and anthelmintics) have been evaluated as a separate category in previous evaluations (van Asselt et al., 2019, 2020), except for the pyrethroids and organophosphate pesticides (OPPs), because these were classified as a separate group in the earlier classification. As a result, the current evaluation is limited to the pyrethroids (cyfluthrin, cyhalothrin, (α)-cypermethrin, deltamethrin, flumethrin, permethrin) and organophosphates (diazinon and phoxim) present in Regulation (EU) 37/2010. Therefore, only insecticides were evaluated in the current evaluation of Group B1b.

3.12.2 Results of the prioritisation

In total, 8 authorised pyrethroids and organophosphate pesticides were evaluated according to decision tree III. An overview of the prioritisation is given in Table 14 and a more detailed overview of the results is provided in Annex 12.

Insecticides are not considered essential antimicrobials for humans; Q1 is therefore answered with 'N' for all substances and all of them subsequently are prioritised either medium or low. Answering the subsequent questions is complicated by the fact that all of the substances in the list, except flumethrin, are considered 'dual use substances' and may also be used, or may even primarily be used as a pesticide. With respect to Q2, this implies that MRLs have been established both from the perspective of VMP use (Regulation (EC) 470/2009) and pesticide use (Regulation (EC) 396/2005) and these are not always harmonized. Pesticide residue MRLs are much more differentiated (covering 378 food products of which over 50 are of animal origin) and a default MRL of 0.01 mg/kg applies to substance/food product combinations not explicitly mentioned in the MRL legislation. Subsequently, these substances are also included in the pesticide residue control programs ensuing Regulation (EC) No 396/2005. For the current evaluation, pesticide MRLs were ignored and only the availability of VMP MRLs was taken into account. For some substances, non-compliant results were reported, despite the fact that they do not have an MRL established.

Table 14 *Prioritisation of authorised insecticides using decision tree III*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
Cyfluthrin	Low	Low	Low	Low	Start survey	Low	Low	Low
Cyhalothrin	Low[3]	Low[3]	Low[3]	Low	Start survey	Low[3]	Low	Low
Cypermethrin/ α-cypermethin	Medium	Low[3]	Low[3]	Low	Start survey	Low	Low[3]	Low[3]
Deltamethrin	Medium	Low[3]	Low	Low	Start survey	Low	Low	Low
Diazinon	Low	Low	Medium	Low	Start survey[*2]	Medium	Low[3]	Low[3]
Flumethrin	Medium	Start survey[*2]	Start survey[*2]	Start survey[*2]	Start survey[*2]	Start survey[*2]	Medium	Start survey[*2]
Permethrin	Low[3]	Low[3]	Medium	Medium	Start survey	Medium	Low[3]	Low[3]
Phoxim	Low	Low	Low	Low	Start survey	Low	Medium[4]	Low

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

1) Sales data are above the threshold (not applicable for this group of substances)

2) Non-compliances were found in related species

[3] Low priority, but levels >LOD were detected in the animal species/product

[4] Medium priority, but this is only relevant for laying hens as it is primarily used in this animal species

In order to answer Q3, besides the sources mentioned in 2.3, EFSA year reports on pesticide residues in food (2014-2018) were taken into account as well. However, only explicit non-compliant results that were specified to a relevant animal species or product were used to answer Q3 positively. Sub-MRL findings from exposure assessments, as well as sub-MRL data from KAP were indicated with a superscript (3) in case the final outcome was 'low', in order to allow for a further differentiation between occasional exposure and none at all.

For Q4, the availability of the substances was checked. VMP availability for food producing species in the Netherlands is limited to cypermethrin, deltamethrin, permethrin, diazinon and phoxim. For cyfluthrin, cyhalothrin and flumethrin, VMP registrations can be found outside the Netherlands. Current Ctgb registrations for biocides on the other hand are available for lambda-cyhalothrin, (alpha)cypermethrin, deltamethrin and permethrin. The FIDIN sales data showed that only permethrin for cows and phoxim for chicken were sold at quantities above the threshold.

The results of the evaluation show that flumethrin is classified as medium priority for bovine and poultry since non-compliances were reported (while for poultry no MRL has been established) by Belgium and Ireland respectively. Due to these non-compliances, a survey is recommended for the remaining animal species for flumethrin, since this substance is lacking from the methods used for monitoring. Additionally, the FIDIN sales data show that sale for companion animals is considerable indicating that VMPs containing flumethrin. Phoxim is classified as medium priority for poultry, but this applies only to spent laying hens and not to broilers, since the substance is primarily registered and used for treatment of red poultry mite in laying hens. Since the withdrawal time for eggs is only 12 hours, the substance's priority in egg is low.

All other medium classifications originate from non-compliant findings, except for (α-)cypermethrin and deltamethrin in bovine. These substances were reported at sub-MRL concentrations, but availability of bovine VMPs with a long withdrawal period yielded a medium classification.

3.13 Authorised sedatives (Group B1c)

3.13.1 List of substances

All sedatives included in Table 1 of Regulation (EU) 37/2010 were included in the evaluation.

3.13.2 Results of the prioritisation

In total, 14 authorised sedatives were evaluated according to decision tree III. An overview of the prioritisation is given in Table 15 and a more detailed overview of the results is provided in Annex 13.

As mentioned in section 2.4, Q1 of decision tree III is not relevant for sedatives and other evaluated substances in this report. Therefore, none of the authorised sedatives obtained a high priority.

Q2 of the decision tree was evaluated based on the presence or absence of an MRL for the animal species studied. Detomine has an MRL in bovine and horse, carazolol has an MRL in bovine, including milk, and porcine, azaperone/azaperol has an MRL in porcine, isofluran has an MRL in porcine and horse. In these cases, Q2 was answered positively, where after Q3 regarding non-compliances needed to be answered. Note that poultry, milk and egg are not monitored for sedatives. The authorised sedative that is recommended to monitor by the EURL, and therefore has to be monitored by all EU member states, is azaperone, including its marker azaperol, carazolol and xylazine. Thus, for this substance, monitoring data is available.

Table 15 *Prioritisation of authorised sedatives using decision tree III*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
Azaperon (marker azaperol)	Medium	Start Survey*2	Medium	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey
Brotizolam	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey
Butorphanol	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey
Carazolol	Low	Start Survey	Low	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey
Detomidine	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey
Isofluran	Start Survey	Start Survey	Start Survey	Start Survey*1	Start Survey	Start Survey	Start Survey	Start Survey
Ketamine	Start Survey*1	Start Survey*1	Start Survey*1	Start Survey*1	Start Survey*1	Start Survey*1	Medium	Start Survey*2
Levomethadone	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey
Lidocaine	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey
Mepivacaine	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey
Procaine	Start Survey*1	Start Survey*1	Start Survey*1	Start Survey*1	Start Survey	Start Survey*1	Start Survey	Start Survey
Romifidine	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey
Thiopental	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey	Start Survey
Xylazine	Medium	Start Survey*2	Medium	Start Survey*1	Start Survey	Start Survey	Start Survey	Start Survey

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

1) Sales data are above the threshold

2) Non-compliances were found in related species

All other authorised sedatives were included in Regulation (EU) 37/2010, but are listed as 'no MRL required' for certain animal products. These substances do fit in decision tree III as they are included in the regulation. In case no MRL is necessary for an animal species, Q2 was answered negatively, after which Q4 regarding regular use of the substance in the animal species needed to be answered.

For bovine, non-compliant results were found for azaperon and xylazine resulting in a medium priority. For the other monitored substance, carazolol, no non-compliances were found and Q4 on regular use was answered. Since no EU registrations for beef cattle were found and, therefore, no sales data in FIDIN, Q4 was answered negatively, resulting in a low priority. All the other substances are not monitored and thus resulted in the recommendation to start a survey. For ketamine and procaine, sales data were above the threshold of 10 kg, which is seen as an indication for use. As a result, an asterisk is added to the recommendation to start a survey. The substance is then more likely to be found in this animal species than in others for which there is no indication for use.

As the FIDIN data do not distinguish between beef cattle and dairy cows, the same final conclusion was drawn for ketamine and procaine in milk. Additionally, since non-compliances were found in bovine, this was seen as indications of use in dairy cows resulting in 'start survey*[2]' for azaperon and xylazine.

For porcine, non-compliant results were found for azaperon and xylazine resulting in a medium priority. For carazolol, no non-compliances were found. Spain has two registered products for carazolol use in pigs. However, in the Netherlands, this substance was not sold according to the FIDIN data resulting in a low priority. More than 10 kg of ketamine and procaine were sold in 2019. Therefore, these substances were prioritised as 'start survey*[1]'.

For horse, no non-compliances were found for azaperon, carazolol or xylazine. However, not enough samples are monitored (<10/year) to draw a clear conclusion based on monitoring data. Therefore, Q4 was answered 'unknown' for all substances, resulting in the recommendation to start a survey. More than 10 kg of isoflurane, ketamine, procaine and xylazine are sold in 2019 and these substances were prioritised as 'start survey*[1]' in horse.

For both goat and sheep, no non-compliances were found. However, like horse, not enough samples are monitored (<10/year) to draw a conclusion based on monitoring data. Therefore, Q4 was answered 'unknown' for all substances, resulting in the recommendation to start a survey. Ketamine is registered and sold in The Netherlands, but at <10 kg based on FIDIN sales data of 2019. Between 2015 and 2018 about 30 – 40 kg of ketamine per year was sold although it is unclear whether these volumes were sold for goat and sheep as the sales data did not allow a distinction between mammals. Nevertheless, these numbers show that ketamine was used on a larger scale only recently, and should, therefore, be taken into account. The question regarding the number of products sold in Q4 was answered positively, adding an asterisk to the conclusion for both animal products. Additionally, for sheep an asterisk was also added to procaine, as more than 10 kg was sold for this animal species.

Poultry is not monitored for sedatives in The Netherlands. However, based on EFSA data, a non-compliance was found in turkey for ketamine, resulting in medium priority. For other substances, the conclusion is to start a survey. No products are sold for poultry; therefore, no asterisks were added.

Egg is not monitored for sedatives in The Netherlands and no non-compliances were found in other EU MSs. As a non-compliance for ketamine was found in turkey, it cannot be ruled out this substance might be used in laying hens. As a result, it is recommended to start a survey in egg. All other authorised substances resulted in 'start survey' in egg without further prioritisation.

3.14 Other authorised substances (Group B1e)

3.14.1 List of substances

Group B1e in principle includes all other authorised substances indicated in Regulation (EU) 37/2010 that are not covered under groups B1a-B1d. However, in this evaluation, we only included substances

for which MRLs were set. This concerned only a limited number of beta-agonists and steroids. All other remaining substances for which 'no MRL is required', such as homeopathics, salts, etc. were not included.

Two beta-agonists and eight steroids were added to the list: clenbuterol and cabergoline, altrenogest, betamethasone, chlormadinone, dexamethasone, flugestone acetate, methylprednisolone, norgestomet and prednisolone. The final list is indicated below (Table 16).

3.14.2 Results of the prioritisation

In total, 10 other authorised substances listed in Regulation (EU) 37/2010 were evaluated according to decision tree III. An overview of the prioritisation is given in Table 16 and a more detailed overview of the results is provided in Annex 14.

None of the substances are an essential antimicrobial for human use, therefore Q1 was answered negatively. MRLs have been established for cabergoline in bovine, including milk, for clenbuterol in bovine, including milk and horse, for norgestomet in bovine, milk and porcine animal products, for altrenogest in porcine and horse animal products, for flugestone acetate in horse, goat and sheep animal products, for chlormadinone in bovine animal products and (bovine) milk, for methylprednisolone in bovine animal products, for prednisolone in bovine animal products and (bovine) milk, for betamethasone in bovine animal products, porcine animal products and (bovine) milk, and for dexamethasone in bovine, porcine, horse and goat animal products and (bovine and goat) milk. For these substances with MRLs in the specified animal species, Q2 was answered positively, where after Q3 regarding non-compliances needed to be answered. For all substances with no MRLs in the specific animal species, Q2 was answered negatively, and were subjected to Q4 – is the substance regularly used in this animal species.

Table 16 *Prioritisation of other authorised substances using decision tree III*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
Authorised beta-agonists								
Cabergoline	Start survey	Start survey	Start survey[3]	Start survey[3]	Start survey	Start survey	Start survey	Start survey
Clenbuterol	Medium	Start survey[*2]	Medium	Medium	Start survey[*2]	Start survey[*2]	Medium	Start survey[*2]
Authorised steroids								
Altrenogest	Start survey	Start survey	Start survey[*1]	Start survey	Start survey	Start survey	Start survey[4]	Start survey[4]
Betamethasone	Medium	Start survey[*2]	Low	Start survey[*2]	Start survey[*2]	Start survey[*2]	Start survey	Start survey
Chlormadinone	Low	Start survey	Low	Start survey	Start survey	Start survey	Start survey	Start survey
Dexamethasone	Medium	Start survey[*2]	Medium	Start survey[*2]	Start survey[*2]	Medium	Start survey	Start survey
Flugestone acetate	Start survey	Start survey	Start survey	Start survey	Start survey	Start survey	Start survey[4]	Start survey[4]
Methylprednisolone	Medium	Start survey[*2]	Low	Start survey[*2]	Start survey[*2]	Start survey[*2]	Start survey	Start survey
Norgestomet	Start survey	Start survey	Start survey	Start survey	Start survey	Start survey	Start survey[4]	Start survey[4]
Prednisolone	Medium	Start survey[*2]	Low	Medium	Medium	Start survey[*2]	Start survey	Start survey

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

1) Sales data are above the threshold

2) Non-compliances were found in related species

[3] Unlikely since primarily used in milk or egg producing species

[4] These substances are used for oestrus synchronization, the use in poultry and egg is unlikely

For bovine animal products, non-compliant residue results were found for clenbuterol, methylprednisolone, prednisolone, betamethasone and dexamethasone resulting in a medium priority. No non-compliant data were found for chlormadinone resulting in a negative answer for Q3. Since also no residue levels below the MRL were found and the substance was not sold above the threshold of the FIDIN sales data, Q4 was answered negatively, resulting in a low priority for this substance.

On subjecting the substances to Q4, the non-compliant results for methylprednisolone, prednisolone, betamethasone and dexamethasone in bovine animal products, were seen as an indication for use in milk and other mammals for which no monitoring data were available resulting in a recommendation to start a survey added with an asterisk.

For porcine, monitoring data on methylprednisolone, betamethasone and prednisolone showed no non-compliances resulting in a low priority. Non-compliant residue results were found for dexamethasone and was consequently given medium priority. Norgestomet and altrenogest were not found as substances monitored in the NRCP and therefore answered unknown (U) for Q3. Since altrenogest has registered products within the EU for porcine and the sales data were above the threshold of 10 kg/year, an asterisk was added to the recommendation to start a survey.

In poultry, all previously mentioned corticosteroids (betamethasone, dexamethasone, methylprednisolone and prednisolone) are not registered for use in poultry. However, products which could be suitable for administration in poultry (e.g. orally) are available. Also, with the absence of monitoring data of these substances in poultry and eggs prior to 2018 in the NCRP, the likelihood of use in poultry and eggs could not be established. Although in 2018 no non-compliant results were reported, insufficient data were available to draw a definite conclusion for these substances. As a result, all substances in poultry and egg result in the recommendation to start a survey.

For the other animal species, no or limited data (<10 samples/year) were available in the NRCP for the substances evaluated in this group. These substances in most cases, thus, resulted in a recommendation to start a survey. In some cases, an asterisk was added to indicate that non-compliances were found in related species. For both poultry and egg animal products, Q3 was not evaluated since all substances were answered negatively for Q2. Since the substances were not included in the NRCP, it was recommended to start a survey for most of the substances in poultry and egg.

In some cases, non-compliances were found in EFSA reports or RASFF notifications. For example, a non-compliance was reported by EFSA for clenbuterol in poultry in 2018 and in horse in 2015, which subsequently resulted in a medium priority for this substance in these animal species. For horse and goat, the EFSA report of 2018 reported a non-compliance for prednisolone, which thus resulted in a medium priority in these animal species. Finally, EFSA reported a non-compliance of dexamethasone in sheep, which subsequently led to a medium priority for this substance. This non-compliance in sheep was seen as an indication for use in goat. Therefore, an asterisk was added to the recommendation to start a survey. Similarly, the non-compliance for prednisolone in goat led to a recommendation to start a survey*[2] in sheep.

3.15 Authorised coccidiostats (Group B2)

3.15.1 List of substances

The list of authorised coccidiostats and histomonostats is composed of substances included in the EU Register of Feed Additives pursuant to Regulation (EU) 1831/2003 (decoquinate, diclazuril, halofuginon, lasalocid, maduramicin, monensin, narasin, nicarbazin, robenidine, salinomycin and semduramicin) and additional substances originating from Annex 1 of Regulation (EU) 37/2010 (amprolium, clazuril, imidocarb and toltrazuril). Imidocarb should formally be classified as an antiparasitic drug, but was not included in the previous evaluations (van Asselt et al., 2019, 2020). Diclazuril, halofuginon, lasalocid and monensin are represented both in Regulation (EU) 37/2010 and Regulation (EU) 1831/2003, so these substances can have a registration both as feed additive and as VMP.

3.15.2 Results of the prioritisation

In total, 15 authorised coccidiostats and histomonostats listed in Regulation (EU) 37/2010 and (EU) 1831/2003 were evaluated according to decision tree III. An overview of the prioritisation is given in Table 17 and a more detailed overview of the results is provided in Annex 15.

Coccidiostats are not considered essential antimicrobials for humans; Q1 is therefore answered with 'N' for all substances and all of them subsequently are prioritised either medium or low.

For the substances that have a registration as a feed additive, MRLs have been established for the target species within the regulation concerning its specific authorisation. The primary target species for all coccidiostatical feed additives is poultry (only robenidine and diclazuril can also be applied for rabbits). For other than the target species, Regulation (EU) 124/2009 establishes maximum levels in foodstuffs resulting from the unavoidable carry-over of coccidiostats in non-target feed. This Regulation takes into account additional species ensuing from Regulation (EU) 37/2010. (For example: bovine is not a target species for monensin in Regulation (EU) 1831/2003, but it has VMP MRLs in Regulation (EU) 37/2010, so it is excluded from the definition of 'carry-over' MRLs in (EU) 124/2009). As a consequence, for the majority of the substances in this evaluation (rather low) MRLs for all species/foodstuffs are available (Q2:Y), although it should be noted that these do not originate from an EMA Committee for Medicinal Products for Veterinary Use (CVMP) VMP safety evaluation. Amprolium and clazuril are included in Regulation (EU) 37/2010 for oral use in poultry and in pigeons respectively, under the condition 'no MRL required', which effectively yields the answer N to Q2 for all species. Also, for diclazuril and decoquinate (represented in Regulation (EU) 1831/2003), Regulation (EU) 37/2010 holds the condition 'no MRL required' for all ruminants/porcine and bovine/ovine respectively. The MRLs for imidocarb are limited to bovine/ovine, while toltrazuril has MRLs for all mammalian species and poultry (milk and egg excluded).

Table 17 *Prioritisation of authorised coccidiostats using decision tree III*

Substance	Bovine	Milk	Porcine	Horse	Goat	Sheep	Poultry	Eggs
Amprolium	Low	Start survey	Start survey	Start survey	Start survey	Start survey	Low[4]	Low[4]
Clazuril	Low	Start survey	Start survey	Start survey	Start survey	Start survey	Low	Low
Decoquinate	Medium	Start survey[*2]	Start survey[*2]	Start survey[*2]	Start survey[*2]	Start survey[*2]	Medium	Medium
Diclazuril	Low	Start survey	Start survey	Medium	Start survey	Start survey	Low	Medium
Halofuginon	Medium	Start survey[*2]	Start survey[*2]	Start survey[*2]	Start survey[*2]	Start survey[*2]	Medium	Low
Imidocarb	Start survey	Start survey	Start survey	Start survey	Start survey	Start survey	Start survey	Start survey
Lasalocid	Low	Start survey	Medium	Start survey[*2,3]	Start survey[*2]	Start survey[*2]	Medium	Medium
Maduramicin	Low	Start survey	Medium	Start survey[*2,3]	Start survey[*2]	Start survey[*2]	Medium	Medium
Monensin	Low	Start survey[*1]	Medium	Start survey[*2,3]	Medium	Medium	Medium	Medium
Narasin	Low	Start survey	Start survey	Start survey[3]	Start survey	Start survey	Medium	Medium
Nicarbazin	Low	Start survey	Start survey	Start survey	Start survey	Start survey	Medium	Medium
Robenidine	Low	Start survey	Start survey	Start survey	Start survey	Start survey	Medium	Medium
Salinomycin	Low	Start survey	Start survey	Medium[3]	Start survey	Start survey	Medium	Medium
Semduramicin	Low	Start survey	Start survey	Start survey[3]	Start survey	Start survey	Low	Low
Toltrazuril	Medium	Start survey[*1]	Medium	Start survey[*2]	Start survey[*2]	Start survey[*2]	Medium	Medium

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

1) Sales data are above the threshold

2) Non-compliances were found in related species

[3] Substance is toxic for horses, so deliberate use is unlikely

[4] Substance is used substantially, but only since 2019 -> not yet reflected in monitoring data

Non-compliances (Q3) in poultry were reported for all coccidiostats applied as feed additive, except semduramicin and diclazuril. However, for diclazuril, multiple non-compliances were reported in egg. Additionally, non-compliances in poultry and egg were reported for toltrazuril. As a consequence, these substances receive a medium priority for both poultry and egg.

Because (use of) coccidiostats are essentially associated with poultry production, (Dutch) monitoring data for most of the other species are limited or lacking. Besides poultry and egg, only monitoring data for bovine are sufficient to be used in the evaluation as well as specific monitoring of toltrazuril in porcine. As a consequence, the conclusion of the evaluation for the majority of substances is 'start survey' for milk, porcine, horse, goat and sheep.

Non-compliances have been reported for lasalocid, maduramicin, monensin and toltrazuril in porcine, and decoquinate and halofuginon in bovine, which increases the priority for starting a survey for related species. It should be noted, however, that the ionophoric coccidiostats are toxic to horses, so intentional use is highly unlikely. Nevertheless, there were several reports of salinomycin non-compliances in horse. The remaining medium priority species/substance combinations also originate from non-compliant reports by EU member states, except for toltrazuril in bovine, for which the medium priority is a result of the sales data combined with a long withdrawal period.

4 Discussion

4.1 General discussion points

The aim of this research was to prioritize substances for inclusion in the NRCP. The starting point was the results of the monitoring in animal products. In case no non-compliances were found for a substance in the last 5 years, this substance obtained a low priority to include in the NRCP regardless of its possible adverse human health effects. The outcome of this research therefore cannot be seen as a risk assessment (for a full risk assessment, both occurrence and severity should be included equally), but rather as a prioritisation of substances into low, medium and high priority to include in the NRCP.

The current evaluation was carried out based on the classification as indicated in the draft Annex of Regulation (EU) 2017/625 (i.e. 2.0 SANTE 2017 11987 Annex rev5). Some remarks need to be made with respect to this new version of the classification. Compared to the earlier version (i.e. SANTE 11987-2017Rev1), there is a clear distinction between prohibited or unauthorized (A) and authorized substances (B). Nevertheless, the current classification still holds some inconsistency, as the B group comprises antimicrobials (B1a), coccidiostats and histomonostats (B2), and insecticides, fungicides, anthelmintics (B1b) while the A group comprises antimicrobials (A3c), coccidiostats and histomonostats (A3d) and pesticides and biocides (A3b). Neither of these divisions is fully indisputable, but it would be more consistent to distinguish into antimicrobials, antiprotozoals, anthelmintics and agents against ectoparasites for both group A and B substances. Finally, besides this issue of the definition of classes, one should realize that the activity spectrum of many of the pharmacologically active substances is not limited to a single class, which makes their classification in a certain group sometimes somewhat arbitrary.

The various Group A and B substances were evaluated using decision trees I and III, respectively. The underlying criteria for answering the question on potential use and the uncertainty related to non-compliances in case monitoring data are lacking, yields a wide range of factors to be taken into account, as shown in Tables 1 and 2. A structured methodology was applied in order to ensure an objective and transparent prioritisation of the substances. However, the outcome in some cases was considered illogical. This was especially the case when there was a lack of monitoring data in a particular species, while related species showed no non-compliances. According to the methodology, this could result in a medium or high priority for the species for which monitoring data were unavailable, while for other species the priority was low. Conversely, some substances received a low priority although residues were detected (but below the MRL). For those cases where the outcome can be disputed, additional explanations were included in the result tables.

The potential availability of the group A substances was evaluated using websites such as alibaba.com and ebay.com as well as doping sites (such as anabolenpower.com). This often indicated that numerous products were available, but these were not always likely to be used in a particular animal species. For example, injectables were found, which are not likely to be used in poultry. These provisions are indicated in the tables using 'Unlikely' with explanatory letters a-e (see annexes). Moreover, some substances appear only to be available as an analytical standard, which makes substantial *in vivo* use highly unlikely. These were, therefore, evaluated as unavailable for livestock producers and the question on availability was thus answered negatively. It should, furthermore, be noted that the evaluation of online availability is limited to information that was accessible in English. It is conceivable that complementary exploration, in particular in Chinese, would yield additional information, but this is beyond what was achievable within the current project.

For the group B substances, the potential use was primarily based on the FIDIN sales data. Compared to the previous evaluations (van Asselt et al., 2019, 2020), the established threshold values, which were used to determine whether use in animal species was likely (see section 2.4), were adjusted. In

the previous evaluations, all FIDIN sales data were combined and a threshold value of 100 kg was established to evaluate antiparasitics and NSAIDs for cows, pigs and chicken and 10 kg for horse. In the current evaluation, the sales data were combined per animal species for those veterinary drugs that were in the same order of magnitude resulting in a threshold of 150 kg for cows, pigs and chicken and 65 kg for horse, goat and sheep to evaluate antiparasitics, NSAIDs and coccidiostats. For the authorised beta-agonists, steroids and sedatives, sales values were much lower resulting in a threshold of 10 kg for all livestock animals. In order to determine the effect of this change on the final outcome of the previous evaluations, these new (higher) thresholds were applied to the earlier evaluated substances (as indicated in (van Asselt et al., 2019, 2020)). This showed that the outcome using the old and new thresholds was the same for NSAIDs. For antiparasitics, the outcome for cows and pigs was the same, but two of the 32 evaluated antiparasitics in horse would now obtain a negative answer to Q4 – is the substance regularly used in this animal species using the new thresholds. The positive outcome in 2019 and their subsequent medium priority can be seen as worst-case approach. In case the evaluation is updated in the future, the available monitoring data will indicate whether these substances should remain a medium priority substance or not.

When evaluating non-compliances for the various substances, EFSA annual reports compiling the results from all individual EU NRCPs were used, supplemented with data from the Dutch NRCP and RASFF notifications. The EFSA reports, unfortunately, in most cases do not differentiate between goat and sheep. In some cases, the information on the follow up actions, as indicated in the EFSA reports, revealed whether non-compliances were reported in goat or sheep, but in most cases this information was not available. As indicated previously (van Asselt et al., 2020), goat and sheep are often reared differently resulting in a different VMP use. In case a differentiation was not possible, a worst-case approach was used assuming the results applied both for goat and for sheep.

Another worst-case approach was used for the sales data from FIDIN. Substances are usually registered for multiple species and sales data are then recorded for all these species. For example, most products for goat are also registered for bovine and it can be assumed that most sales data will then be for bovine. However, since this distinction could not be made, all sales data where goat was mentioned as one of the target animals was used to answer Q4 for this animal species. Again, this is a worst-case approach. Furthermore, the FIDIN data also do not allow a distinction between beef cattle and dairy cows (everything is recorded under bovine) and between broilers and laying hens (everything is recorded under poultry). Results were then used for both animal species/products.

The evaluations performed in this study show that most monitoring was performed on bovine and porcine. As indicated previously (van Asselt et al., 2019, 2020), in most cases limited data were available for the minor livestock species horse, goat and sheep. However, for some substances also limited data were available in poultry, egg and milk. In order to differentiate between priority results based on available data and priority results that were less substantiated, provisos (high#1 or high#2) were used for the unauthorised substances (group A). For the authorised substances (group B), a lack of monitoring data resulted in a recommendation to start a survey.

Some substances are included in Regulation (EU) 37/2010 with 'no MRL required'. Although at first sight this could be interpreted as no risk for residues in animal products, and thus no necessity for monitoring, it is important to note that this is not necessarily true. Amprolium for example: the combination of rapid depletion and the fact that use of the substance is limited to poultry results in the conclusion that the number of residues likely to be ingested by consumers is less than 20% of the ADI. Nevertheless, residue levels in egg were found and can reach 1500 µg/kg. Also, the combination 'no MRL required' and the additional provision 'not for use in animals from which milk or eggs are produced for human consumption' might indicate monitoring is not needed since use is not expected. However, this cannot be excluded and uptake in the NRCP might be considered for such substances.

4.2 Discussion on matrix for analysis

The research described in this report focused on prioritising substances in order to establish a risk-based NRCP. Once the substances to be included in the NRCP are established, the most suitable matrix for analysis in animal species needs to be determined. The choice of the matrix depends on several factors (van Asselt et al., 2018b). For the group A substances, all stages in livestock production are relevant, as it concerns prohibited substances. The sampling location (farm or slaughterhouse) limits the type of samples that can be taken (tissue samples for example obviously cannot be taken at farm level). Furthermore, regulation may be limiting. Taking blood samples at farm level, for example, is currently not allowed. As a result, monitoring of group A substances at farm level is primarily performed on urine.

For the group B substances, essentially only the residue levels at the time of slaughter (or actually in foodstuffs for human consumption) matter, so monitoring at farm level is less relevant, except for the control of proper administration. Related to this, in order to increase the likelihood of detection of the group B substances, but also for group A substances, research is increasingly focusing on the analysis of alternative matrices such as hair and feathers (Becue et al., 2011; Berendsen et al., 2013b; Jansen et al., 2016), although hair sampling may be less feasible than urine sampling.

For most group B substances, MRLs are set for two carcass matrices (muscle and fat) and two offal matrices (liver and kidney). In practice, however, only one and in some cases two of these are subjected to residue analysis. The rationale for the choice may vary. Traditionally, high absolute residue levels are favoured, yielding a preference for either liver or kidney. However, for imported animal products these are usually not available. No general statement is possible with respect to which matrix yields the highest probability of finding an MRL violation. One would expect the ratios between the MRLs set for the different matrices to reflect residue ratios found *in vivo*, but for many substances this appears not to be true. It is not always clear what the origin of these discrepancies is. For some (older) approvals no differentiation between levels in different matrices was made (e.g. sulfonamides, penicillin). Also, different types of administration (oral vs parenteral) will give rise to different residue kinetics. It would, therefore, be worthwhile to reconsider the preferred matrix for analysis by assessing available residue kinetics data.

In some cases, such as for corticosteroids, it is advised to include milk as a matrix in the monitoring additional to urine sampling (see section 4.3.3).

4.3 Discussion on group A1 substances

In the NRCP, substances in group A1 are not monitored in eggs and milk; therefore, the prioritisation of these substances is mainly based on indications of potential use for these substances. For milk, non-compliant findings in other milk-producing animals were seen as an indication of use, resulting in a medium or high priority. For eggs, non-compliant findings in poultry were seen as an indication of use, resulting in a medium or high priority.

4.3.1 Stilbenes (Group A1a)

Benzestrol, dienestrol, diethylstilbestrol and hexestrol are all highly potent estrogens, which have been applied for poultry fattening between the 1930s-1970s, due to their low costs and availability. The fattening of poultry by these stilbenes, was mainly due to increased fat content of liver, lung and muscle tissue. (Lorenz, 1943) For poultry, this was commonly achieved by mixing small amounts of diethylstilbestrol, dienestrol or hexestrol into the animal feed (Jones and Deatherage, 1953; Wada et al., 1963; Herrick et al., 1970). For diethylstilbestrol, products directly administrable were found online, but no products containing dienestrol or hexestrol. Therefore, diethylstilbestrol was given a high#[1] priority in poultry. Although dienestrol, hexestrol and benzestrol have been used previously, no non-compliances were found for these substances and since no VMPs were found online, this resulted in a low priority in poultry and egg. Apparently, its use is less likely nowadays. Nonetheless, the

monitoring of stilbenes in poultry would be sensible due to the historic evidence of administration described in literature and their carcinogenicity in both animals and humans.

4.3.2 Antithyroid agents (Group A1b)

Antithyroid agents are, currently, not monitored in the NRCP for poultry and eggs. However, propylthiouracil and tapazole resulted in a high priority for inclusion in the NRCP since registrations in the EU were found for companion animals. However, the online availability and potential use could be seen as unlikely. For these substances, a proviso (high#2) was added to the final prioritisation indicating that these substances have a high priority because of limited data even though a potential use in poultry is less likely since only indistinct powders were found. These substances are considered more likely to be found in mammals.

4.3.3 Steroids (Group A1c)

Within the group of steroids, a multitude of steroids, gestagens and corticosteroids were evaluated. For some of these substances (17β-nortestosterone, 17α-nortestosterone, 17β-boldenone, 17α-boldenone, progesterone, 17β-testosterone, 17α-testosterone, 17β-estradiol, 17α-estradiol, cortisol (hydrocortisone), cortisone, prednisone, and prednisolone), it is known that they can be endogenously present in livestock matrices. This could, therefore, potentially explain the higher amount of non-compliant findings within the residue data of the substances. Further research is needed to distinguish endogenous origin and exogenous administration of these substances (FAVV, 2013). When focusing on the designer anabolic counterparts, less to no non-compliant findings were found in the residue data.

In the NRCP, 17α-methyl-5β-androstane-3α,17β-diol (MEAD I) is monitored. While MEAD I is in itself not an administrative form of a steroid, it is one of the primary metabolites of methyltestosterone and, therefore, actively monitored (Biddle et al., 2009). This provides additional confirmation of the positive finding of methyltestosterone in bovine and is, therefore, included in this prioritisation.

Since for most steroids the route of administration is mainly intravenously or intramuscularly, their use in poultry would be seen as unlikely. Therefore, these steroids ended as low priority. However, a selection of steroids is also orally active. These orally active steroids include methyltestosterone, ethinylestradiol, methylboldenone, megestrol, medroxyprogesterone, melengestrol and triamcinolone. Therefore, if products were found available online, these substances resulted in high[#2] priority.

Besides before mentioned (anabolic) steroids, corticosteroids, including ciclesonide, cortisol (hydrocortisone), cortisone, prednisone, flumethasone, clobetasol, beclomethasone, isoflupredone and triamcinolone, could be administrated as creams. However, the use of cream products for poultry were seen as unlikely and were, therefore, prioritised as low priority.

With the absence of monitoring data in milk, non-compliances found in milk producing animals (bovine, goat and sheep) were used for the prioritisation. While steroids could potentially be secreted in milk following exogenous administration, the highest fraction would be suspected to be secreted via urine. Therefore, urine is often the matrix of choice for the determination of steroids.

However, the class of corticosteroids could potentially be used for the treatment of udder infections following their anti-inflammatory effect. This could, therefore, result in the secretion of higher concentrations of corticosteroids in milk. Since milk is not actively monitored for the presence of corticosteroids in the NRCP, this could not be ruled out. Therefore, further research is recommended by e.g. a survey.

4.3.4 Resorcyclic acid lactones (Group A1d)

The group of resorcylic acid lactones comprises 6 substances, of which zeranol (α-zearalanol) is used in cattle for weight gain in the US and Canada. In Europe, zeranol is not registered for veterinary use in food producing animals and, therefore, unauthorized. Zeranol is commercially prepared from zearalenone, a structurally similar toxin produced by *Fusarium* spp. (Sterk et al., 2014). *Fusarium* spp.

produce identical metabolites including zeranol and taleranol following the toxin metabolism as described by Sterk et al. (2014). As a result of a *Fusarium* infection in cereals, zearalenone can occur naturally in samples of grain, which on intake in mammals can rapidly and extensively be absorbed from the gastrointestinal tract and be metabolised to α-zearalenol and β-zearalenol (Sterk et al., 2014). Currently, there is no absolute confirmation method available to differentiate between abuse of zeranol and the consumption of mycotoxin contaminated feed. Therefore, the non-compliant findings found for most animal products in the EFSA annual reports can either originate from a natural contamination of the feed or from an intended abuse of zeranol.

4.3.5 Beta-agonists (Group A1e)

Beta-agonists are prohibited to be used in the EU, because of human health concerns (Centner and Petetin, 2020). As a result, this group of substances has been included in the NRCP. The evaluation performed in this research allowed to classify the substances in this group into low, medium and high priority to include in the NRCP. In case no non-compliances were found in recent monitoring data (starting from 2013), the substance is classified as low priority. This was e.g. the case for salmeterol. However, non-compliances were found for salmeterol in suspect bovine samples in 2006 (SEC, 2008) implying that salmeterol might be found in bovine and other mammals.

With the absence of monitoring data of beta-agonists in milk and eggs (not included in the NRCP), the prioritisation of beta-agonists for these animal products is based on indications of potential use for these substances. In most cases, this resulted in a low priority to include them in the monitoring. For milk, some substances resulted in a high priority due to non-compliances found in milk producing animals such as bovine, goat or sheep. For others, i.e. for isoprenalin and labetalol in bovine, porcine, horse, sheep goat and milk, for formoterol and salmeterol in horse and for salbutamol, sotalol and terbutaline in poultry and egg a proviso (high#1) was added to these substances to indicate this priority was due to the fact that products were found online but no FDA approvals or EU registrations were found. Metoprolol was the only beta-agonist that received a proviso (high#2) since for this substance only injections were found on online market places. Administration in poultry and laying hens was thus evaluated as unlikely.

4.4 Discussion group A2 substances

This group comprises a miscellaneous group of substances for which an MRL could not be established because residues of those substances constitute a hazard to human health. For such compounds Reference Points of Action (RPAs) have been set to inform the monitoring and the required sensitivity of the analytical methods. These RPAs should be low enough to ensure the safety of the consumer. Even though it concerns prohibited substances, non-compliances are regularly reported in this category, in particular for nitrofurans and chloramphenicol, and to a lesser extent for nitroimidazoles.

Chloramphenicol is a broad-spectrum antibiotic commonly used in human medicine for treatment of eye-infections, but also VMPs for non-food producing animals are available within the EU and the Netherlands providing a relatively accessible route for misuse of the substance. However, chloramphenicol is a bacterial metabolite produced by soil bacteria, and research suggests that occurrence of chloramphenicol residues in animal products could also originate from natural production (Berendsen et al., 2010; Berendsen et al., 2011; Berendsen et al., 2013a; Nordkvist et al., 2016).

Nitrofurans, in particular nitrofurantoin, are still applied in human medicine for the treatment of urinary tract infections, and are also effective against protozoal infections including coccidiosis. In particular, in Asia, these substances are still used as a feed additive, and occur relatively often in RASFF alerts regarding imported animal products. But also within the Netherlands, an animal feed related incident occurred in 2014 (NVWA, 2014). In contrast to the main members of the nitrofuran group of substances (nitrofurantoin, furaltadone, nitrofurazone and furazolidone), which were banned in the EU in 1993 and 1995, nifursol was used until 2003 as feed-additive for the prevention of Blackhead in turkeys. Although no non-compliances were reported for this substance, specific monitoring in turkey could be considered, since effective treatment for Blackhead disease is still lacking.

The nitroimidazoles in this A2 group of substances (dimetridazole, metronidazole and ronidazole) represent only a minor fraction of the total therapeutic arsenal in this chemical class: many other representatives can be found in the group A3d (unauthorized coccidiostats). They have antibacterial, antiprotozoal and anticoccidial properties (so placing the remainder in A3d is a bit arbitrarily). Although they are prohibited for use in food-producing animals, they are readily available for companion animals and as human medicines. Illicit or unintentional use, therefore, can occur relatively easily, which is illustrated by a Dutch study inventorying antibiotic use in small ruminants where prescription of metronidazole was reported (Santman et al., 2013).

For two substances in the A2 category, *Aristolochia* spp. and colchicine, monitoring appears to be virtually absent. *Aristolochia* spp. are used in traditional Chinese medicine and as such widely available through the internet, but because of nephrotoxic and carcinogenic effects of aristolochic acids, they are prohibited outside Asia. The concern, however, is mainly related to the use of herbal preparations by humans (Martena et al., 2007). Colchicine is a plant alkaloid, applied in human medicine for the treatment of gout. Illicit use in food producing animals is not very likely, but a possible contamination route of animal products is through consumption of Colchicum autumnale in forage, which has been reported to yield significant colchicine concentrations in sheep milk (Hamscher et al., 2005).

4.4.1 Latest information

The evaluation described in this report is based on the available monitoring data at the time (up to 2019 as described in chapter 2). This resulted in a low priority for dapsone in bovine, milk and porcine, since no non-compliances were reported (see section 3.6.2). However, while drafting this report, an incident occurred regarding dapsone. In the spring of 2020, this substance was discovered in several calf urine samples. The dapsone residues could be traced back to registered veterinary sulphonamide applications, in which it was present as a contamination. A similar incident occurred in 2011, when dapsone was found as a contaminant in a trimethoprim/sulphamethoxazole-containing pre-mix for fattening pigs. The impurity was assumed to be linked to the synthesis process. Based on the 2011 case, the Committee for Medicinal Products for Veterinary Use (CVMP) concluded that the risk for humans in terms of carcinogenicity when consuming meat from pigs, cattle or chickens treated with veterinary medicinal products containing sulfonamides contaminated with dapsone is likely to be negligible (EMA, 2012).

4.5 Discussion group A3 substances

The A3 group essentially comprises all pharmacologically active substances not included in A1 and A2. Group A3a (unauthorised dyes) was not included in the evaluation as these dyes (crystal violet, malachite green and brilliant green) are only used in aquaculture. It should be noted that the activity spectrum of many of the pharmacologically active substances in the A3 group is not limited to a single class, which makes their classification into a certain group sometimes somewhat arbitrary (see also 4.1). Nitroimidazoles, for example, were accommodated in the A3d group for their anti-protozoal activity, but are also active against anaerobic bacteria and could, therefore, also be classified as A3c.

The far majority of the A3 substances is not represented in the current monitoring programs. This is mainly because of the fact that they have not been approved for food producing animals, and are consequently simply not ‘on the radar’ within the EU. A considerable number of substances (in particular within A3b, A3c and A3d) are, however, applied in livestock farming outside the EU and residue risks could occur in products imported from these areas.

4.5.1 Pesticides (Group A3b)

The majority of the substances in this category (dichlorvos, fenvalerate, fluvalinate, malathion, propetamphos and trichlorfon) were included since, for these substances, MRLs in animal tissues apply in China, which indicates that these substances are approved for use in food producing animals. The actuality and the extent of the application of these substances as veterinary drugs is difficult to determine, but for example malathion for animal treatment appears to be quite common (under the

name maldison in Australia/New Zealand and mercaptothion in South America). Famphur on the other hand was evaluated, since this is an organophosphate approved for use in animal feed in the US. It is intended for beef and non-lactating dairy, but its application seems to be limited to the US and is being phased out.

One factor that could contribute to the occurrence of non-compliances that was evaluated, but not taken into account as a criterium for prioritising, was the potential use as a pesticide, which appears to be relevant (mostly outside the EU) for all substances except famphur. Dinotefuran is the only substance in this category approved for companion animals and recently also gained biocide approval, so although a low priority was attributed, it is a substance that could emerge at some stage in the future.

For most substances, the outcome of the prioritisation is low, essentially because of the absence of non-compliances for these substances in animal products in the pesticide residue monitoring programs. For goat, however, the priority ends up medium or high. This may seem inconsistent, but is a consequence of the approach that was used. For goat, the monitoring data are too limited to substantiate an answer to Q1 and, therefore, approval outside the EU and availability had to be taken into account, which was answered positively. It should be considered whether this also justifies a more explicit focus on the monitoring of these substances in animal products imported from outside the EU in general, despite the low priority outcome.

Nicotine is an effective pesticide against red poultry mite and the lack of effective treatment options is a major incentive for the use of illegal remedies (e.g. fipronil). In 2008, a 12,000 kg batch of nicotine imported from Germany was intercepted, which was intended for poultry treatment. Occasional non-compliant reports from Germany in poultry and eggs suggest that illegal application of this substance is still occurring. The absence of non-compliant results in the Netherlands should be interpreted with cautiousness, since according to a RIKILT study performed in 2004, monitoring should focus on the metabolites cotinine and 3-hydroxycotinine (Traag et al., 2005), while currently only the parent compound nicotine is included in monitoring. Since red poultry mite infestations are typically a layer farming problem, poultry monitoring should focus on spent laying hens. A potential complication might arise from the use of tobacco as an organic prevention/treatment. The extensive online availability of tobacco leaf/stick/straw products suggests common use of these products and it is currently unknown whether this could result in detectable residues of nicotine (metabolites) in poultry products and eggs.

4.5.2 Antimicrobials (Group A3c)

This group comprises substances used as antimicrobial feed additive, antimicrobial VMPs approved for horses and/or companion animals in the Netherlands and the EU and other antibiotics applied in food producing species outside Europe. Most of these substances are absent in the monitoring programs because they have never been approved for food producing species in the EU.

For substances that have a registration for companion animals, the barrier for use in food producing species might be relatively low, as they are available on national level and present in an appropriate formulation. As discussed for the A2 substances, illicit or unintentional use can occur relatively easily, in particular when animals like sheep or goats are kept in a hobby farm setting. Also, horses might be a risk species, related to the possibility to (not) exclude treated animals from human consumption.

The status and subsequent risk for residues of substances used as antimicrobial VMPs, that are not approved in the EU on food producing species, is very difficult to assess. There is a remarkable number of cephalosporins and fluoroquinolones on the list, classified by the WHO as Highest Priority Critically Important Antimicrobials (HPCIAs) (WHO, 2019a). Given their importance, they should only be used when there are no effective alternative antimicrobials available for the treatment. Although awareness on this is raising globally, because of the combination of their broad-spectrum activity, abundant availability and the lack of effective enforcement, it is likely that the use on food producing species will continue.

The majority of the substances applied as feed additives are used in poultry and pig production to improve the animal's health and performance, not necessarily targeting or preventing a disease but aiming at growth promotion. For some classes of substances, this may lead to AMR development or co-selection of AMR. The EU started phasing out the use of antimicrobials as feed additives in the '90s, culminating in a total ban since 2006. Although the use of antibiotics for non-medicinal purposes is increasingly being questioned, it is still common practice in many areas outside the EU. Subsequently, substances used as VMP or feed additive outside EU could potentially be an issue primarily in imported products.

A particular remark should be made related to cyadox. This substance received a low priority. This is currently not on the market, but once it reaches the market it obviously becomes more relevant. An important question is how to keep up with these developments. It requires close monitoring of changes in legislation with respect to approval of substances in major producing countries.

Another remark relates to bambermycin (aliases flavophospholipol / flavomycin), which is one of the antimicrobial feed additives that were phased out in the EU. It is primarily used as a feed additive, and as such still approved and commonly used outside the EU. The primary target species are pigs and poultry, but in China ox was also indicated as target species. According to its status as a banned antimicrobial growth promoter in the EU, it would have been included in A3c. However, bambermycin was included in Regulation (EU) 37/2010 early 2020 (for rabbits, no MRL required), and thus it has become an authorised antimicrobial. Authorised antimicrobials were evaluated in the previous two reports and not part of the current evaluation. When this substance, nevertheless, is evaluated according to decision tree III, this results in 'start survey' for all species because of the lack of monitoring data. The substance should be included in the list of authorised antimicrobials in a future evaluation round.

4.5.3 Unauthorised coccidiostats (Group A3d)

As with several of the other groups, the far majority of these substances is not included in the monitoring programs, because they have never been approved for food producing species in the EU.

Ipronidazole and ternidazole are included in the analytical method applied for targeting the (A2) nitroimidazoles (dimetridazole, metronidazole and ronidazole). As such, they are monitored in porcine, poultry, eggs and milk. Their availability, however, in contrast to the other nitroimidazoles on the list, appears to be non-existent. Other nitroimidazoles appear to be much more common, either within the EU as human medicine or for pigeons, or as veterinary medicine outside the EU. The scope of the method applied for monitoring nitroimidazoles in animal products should, therefore, be reconsidered.

The intended registration of buparvaquone for the treatment of the tick-borne disease Theileriosis may be exemplary for the changing or emerging veterinary drug use related to climate change. In particular, parasite related diseases are likely to emerge and spread, potentially inducing the use of other and/or new antiparasitics (pesticides (A3b) and antiprotozoals (A3d). It is relevant to keep track of these kinds of developments.

4.5.4 Protein and peptide hormones (Group A3e)

Protein and peptide hormones are emerging classes of possible veterinary drugs. However, they are currently not yet monitored in the EU national monitoring plans. Therefore, no monitoring data were available that could be used to answer Q1 of decision tree I. As a result, the substances were classified the same for all animal species and animal products except for rBST. rBST injections are used to increase cow's milk production. Therefore, it is more likely that rBST might be used in milk-producing animals.

The list of protein and peptide hormones is longer than the one included in the current study. GHRPs (e.g. alexamorelin, relamorelin, tabimorelin), GHRH (e.g.CJC-1295, modified growth releasing factor – GRF 1-29, dumorelin, rismorelin, sermorelin, somatorelin, tesamorelin), myostatin inhibitors (e.g. follistatin) are examples of protein hormones that were not evaluated. Some of these substances might be available on the black market. However, it is not yet known if they are used in the veterinary

world. In this work, we decided to start the evaluation on the substances that are currently included in the EURL guidance document. If there are indications for use of the additional protein and peptide hormones, these may be added to the list for an evaluation in the future. First of all, it is relevant to include the medium and high priority substances in the NRCP in order to obtain data that will help to get a classification per animal species and animal product. For human use, several methods for detection of these substances exist, which now have to be applied in the veterinary world. At the moment, WFSR is working on the development and validation of methods for identification of IGF-1, -2 and rBST in bovine serum. It is recommended to further develop and validate methods for all substances classified here with 'high priority'.

4.5.5 Unauthorised sedatives (Group A3f)

Since only a limited number of unauthorised sedatives are included in the NRCP, the prioritisation of these substances largely depends on indications of use. For this, the availability on the internet was evaluated showing that many unauthorised sedatives are sold on the internet for use in humans. This could be in the form of both injectables or pills. The availability of these products was seen as indication of potential use with a few exceptions. One of the exceptions is pentobarbital, which has been found available on some websites and actually has a prescription for most assessed animal species. It is, however, mostly used for euthanasia, after which it is forbidden and dangerous to use the animal for human consumption. Another exception is the use of available unauthorized sedatives in poultry. As no data is available of poultry and egg, usage cannot be ruled out. Use in poultry is, however, seen as unlikely, mainly due to the form in which the products are available on the market (injectables and pills).

In the previous report (van Asselt et al., 2020), pergolide was mentioned as a substance that deserves specific attention. This former anti-Parkinson drug is used to treat horses (not intended for human consumption) suffering from Pituitary Pars Intermedia Dysfunction (PPID), or Cushing's disease, a very common endocrine disorder in aging horses. It is included in the list of unauthorised sedatives and is found to be high priority based on the prioritization described in this report.

Specifically, for the substance triflupromazine, products were found on an Indian website with food producing animals displayed on the package. It is, however, questionable whether these are actually used for these specific animals as information on the website is scarce. Nevertheless, this could be an indication that in certain countries, this product is used less restrictive in animals for human consumption. In this case, imported products from these countries might have an elevated risk to contain triflupromazine.

4.6 Discussion B1 substances

In order to determine whether VMPs are authorised in the EU, several databases were consulted including CBG-MEB but also the Belgium, UK and French databases. Since only a limited number of EU MS databases could be accessed, some authorisations may have been missed. The new Regulation (EU) 2019/6 that comes into force on 28 January 2022 indicates that the public should have access to the VMP database. Ensuing this Regulation, the EU is currently drafting a regulation laying down the necessary measures and practical arrangements for the Union database on marketing authorisations of VMPs. This would support research such as described in this report as it allows an easy access to all authorised VMPs within the EU. However, at this moment the content of the database is limited to registrations that received EU central authorization, and the nationally authorised VMPs from Ireland and Denmark (http://vet.eudrapharm.eu/vet/). It is unclear when a comprehensive database will become available.

4.6.1 Insecticides (group B1b)

This group concerns pesticides with an MRL in Regulation (EU) 37/2010, implying their use as a veterinary pharmaceutical. The evaluation of these substances is complicated by the fact that all of the substances in the list, except flumethrin, may also be used as a pesticide and are considered 'dual use

substances'. From a residue monitoring perspective, it is impossible to determine whether residues originate from (illegal) use as VMP, or occasional environmental exposure, either through treatment of e.g. housing, or transfer from feed through use in plant protection. In that respect, it should be noted that MRL definitions in Regulation (EU) 37/2010 are not always entirely in line with 'pesticide legislation' (Regulation (EC) 396/2005), and Regulation (EU) 37/2010 contains references to outdated legislation. Furthermore, it is relevant to remark that insecticides are also monitored in the EU coordinated pesticide monitoring program as indicated in Regulation (EU) 2020/585. This list contains 26 pesticides to be monitored in products of animal origin. Most EU MS, however, have a wider routine monitoring on animal products. Pesticide monitoring as indicated in Regulation (EU) 2020/585 shows some overlap with the pesticides mentioned in the EURL guidance document (EURL, 2020b) (i.e. fipronil and indoxacarb) as well as with the insecticides evaluated in this report (i.e. cypermethrin, deltamethrin, diazinon and permethrin).

The availability of VMPs for food producing species based on the group B1b substances in the Netherlands is rather limited: only cypermethrin, deltamethrin, diazinon, permethrin and phoxim have (a very limited number of) VMP registrations for food producing species. Permethrin, deltamethrin, flumethrin and diazinon on the other hand are widely available for cats and dogs in products for flea control, often in combination with substances like imidacloprid or fipronil.

The only two available permethrin-based products for bovine concern ear tags. Remarkably, the Ctgb database contains a pour-on product for bovine based on permethrin, illustrating the sometimes indistinct line between VMP and biocides. Also, environmental sprays for flea control containing permethrin might pose a residue risk, as in internet fora their application on poultry for treatment of red poultry mite is suggested. Another example of the inconsistency between pesticide and VMP practice is phoxim, which was phased out as a pesticide, but still can be used as a VMP for treatment of red poultry mite, even in organic production systems.

Flumethrin is only used as an insecticide VMP on animals and not registered as a pesticide, and as such is not routinely included in the scope of the pesticide monitoring. Although there are no VMP registrations for food producing species in the Netherlands, considering the non-compliant findings reported by other countries, it is important to include this substance in the scope. The substance is available in the Netherlands in products against ticks and flees for companion animals, in combination with either propoxur or imidacloprid. The substance is also applied in strips for beekeeping pest control. As such, it has only a single registration in the CBG-MEB database, but online availability is substantial.

Miconazole and ketoconazole are two substances for treatment of fungal infections that are not included in Regulation (EU) 37/2010 and thus should be considered A (unauthorised) substances, although they can be used on horses according to Regulation (EU) 122/2013. Fungicides are, however, not represented in the A group. Nevertheless, since both substances have registered products for companion animals, these substances could be considered for evaluation in a future update.

4.6.2 Authorised sedatives (group B1c)

Ketamine has a registration for many food producing animals and is sold specifically for bovine, porcine and horse according to the FIDIN data. These data also show an increase in sales from 2015 – 2018. In 2019, however, there is a remarkably large decrease. For most species, sales levels are still >10 kg, but for products registered for goat and sheep it dropped below 5 kg, which is comparable to the sales before 2015. It should be noted that the sales data did not allow a clear distinction between goat and sheep and other mammals as products are usually registered for multiple animal species. For ketamine, a non-compliance was found in poultry, specifically turkey, for which no registration of this product is available. In 2016, ketamine was also found in poultry from certain poultry farms in the US, although its origin was uncertain as well as the reason for administration. Even though the latest FIDIN data show a decrease, it is advised that ketamine should be added to the recommended sedatives to monitor in food producing animals.

4.6.3 Other authorised substances (Group B1e)

Altrenogest, norgestomet and flugestone acetate are all veterinary progestin medications present in Regulation (EU) 37/2010, but for therapeutic and zootechnical purposes only with MRLs for altrenogest in porcine and equidae, for norgestomet in bovine, and for flugestone acetate in ovine and caprine. However, all three substances are not monitored in the NRCP. Altrenogest was prioritised as start survey[*1] for porcine, because there is higher indication of use (>10kg sold product in The Netherlands according to FIDIN data). For norgestomet and flugestone acetate, no further indication of potential use could be found and subsequently, because of the missing NRCP data, this resulted in the recommendation to start a survey. Since altrenogest, norgestomet and flugestone acetate are used for oestrus synchronization, the use in poultry and egg is unlikely.

Betamethasone, dexamethasone, methylprednisolone and prednisolone are all corticosteroids and used as anti-inflammatory medication. Although these corticosteroids do not have registered products for poultry, they are potentially useable in poultry since chewable tablets, sprays (pour-on), gels and oral powders are available. Therefore, these substances could potentially be mixed with feed. With the absence of NRCP data, a survey should be started for these substances in poultry and egg.

Cabergoline (veterinary medicine Velactis) is intended for use in dairy cows for the reduction of udder involution duration during the drying-off period in the dairy cow and is administered as a single intramuscular injection. In companion animals, it is reported to be used for the treatment of false pregnancy in dogs and for suppression of lactation in bitches and queens. Cabergoline is a prolactin inhibitor. Prolactin plays a negative role on the reproductive performance of egg-laying (decreases the egg sequence, egg production). Prolactin inhibitors could, thus, be used to enhance the egg production. Therefore, this substance could potentially be used in laying hens as well. With the absence of NRCP data, it is recommended to start a survey for this substances in poultry and egg. After reports of adverse events in dairy cows, EMA recommended suspending the marketing authorisation of Velactis. In December 2019, the Committee for Medicinal Products for Veterinary Use (CVMP) adopted a final negative opinion recommending the refusal of the marketing authorisation for the veterinary medicinal product Velactis. As indicated before, prolactin inhibitors could be used to improve the egg production. Therefore, other (unauthorised) prolactin inhibitors could be potentially be used in poultry and eggs as well. One of these is bromocriptine, classified as a dopamine agonist, and is mentioned to reduce the prolactin level.

Clenbuterol is a β2-agonist, which is a group of substances prohibited for use in livestock farming according to Directive 96/22/EC. However, clenbuterol is included in Regulation (EU) 37/2010 with MRLs in bovine, including milk and equidae and as a result was evaluated in decision tree III. Agonists are not monitored in the NRCP for milk, poultry and eggs and with limited data for goat. Non-compliances were found in bovine for clenbuterol resulting in a recommendation to start a survey for milk, goat and sheep. Monitoring of clenbuterol is relevant since clenbuterol is being used in animal husbandry and sports for growth promoting purposes and is listed on the prohibited list of the World Anti-Doping Agency's (WADA). Findings of unintentional ingestion from contaminated meat have been reported showing that residues in meat may be found (Thevis et al., 2013). A recent incident in Mexico showed that ingestion of such contaminated meat may result in illnesses and hospitalisation (Hertzberger, 2020).

4.7 Discussion B2 substances - Authorised coccidiostats

This group contains substances used as a VMP, substances exclusively used as feed additive and substances used in both types of applications. The major application (in terms of volume) is the prevention of coccidiosis caused by *Eimeria* parasites in poultry. Feeding the animals anticoccidials is considered an almost unavoidable management tool in conventional broiler production. As a result, the use of coccidiostats is expected to be immense, but consumption data for these feed additives are currently not available. Non-compliances in poultry were reported for almost all coccidiostats applied as feed additive, reflecting their massive use.

Continuous use of anticoccidials, however, also promotes the emergence of drug-resistant strains of coccidia. Shuttle and rotation programs, basically alternating ionophores with non-ionophores, are applied to prevent resistance. Apart from the resistance development in the target organisms, there is a recurring debate on whether the ionophore coccidiostats (monensin, salinomycin, lasalocid, narasin, maduramicin and semduramicin) should be classified as antibiotics or not. It is a fact that enterococci and other Gram-positive bacteria are susceptible to ionophores, and can develop resistance against these substances. However, since these concern antibiotics that are not used in human medicine, AMR against ionophores in bacteria is not considered a very important issue and salinomycin susceptibility testing as part of resistance monitoring of poultry isolates was abolished in 2016. It can, however, not be excluded that the use of ionophores poses a risk with respect to cross-resistance or co-selection of AMR.

Monitoring of this group B2 substances in the Netherlands almost exclusively focuses on poultry and egg, but results of the evaluation show that non-compliances have also been found in other animal species and these should, therefore, not be ignored. This may have originated from the unavoidable carry over from poultry feed, but also VMP use can be the cause. Besides the use in poultry, monensin is also provided to cattle to reduce the incidence of ketosis in bovine. It is administered as a continues-release bolus three to four weeks before the expected calving. Applied in this way, residue levels were reported to remain low, yielding a withdrawal period of 0d. Nevertheless, the current sales data could be considered an indication providing some additional urgency for starting a survey in milk.

As mentioned earlier (section 4.1), amprolium is included in Regulation (EU) 37/2010 under the condition 'no MRL required', yielding a 0d withdrawal period, which does not imply residues do not occur. It was used in the past as a feed additive, but currently in the EU, the substance only has a VMP status. Since there is no MRL, non-compliances were not reported, but it is notable that amprolium sales data were above the set threshold in 2019, while before 2019 there was no recorded sale. So, although the priority for this substance ends up low based on the short withdrawal time, low priority in this case not necessarily implies a low probability of occurrence of residues. In fact, more residue findings may occur in the near future.

For diclazuril, multiple non-compliances were reported in egg, while no non-compliances in poultry were reported. This is a direct consequence of the restriction in Regulation (EU) 37/2010 that the substance should not be used in animals from which eggs are produced for human consumption. Residue studies supporting the application for extension of the use of diclazuril as feed additive for chickens reared for laying, however, show that (unintentional) exposure of layers would result in substantial residue levels in eggs (SCAN, 1997). According to Regulation (EU) 37/2010, no MRL is required for ruminants and porcine under the provision 'for oral use only'. Residue studies indeed show that oral absorption and subsequent residues in tissues are much lower in ruminants and porcine than in poultry.

Toltrazuril sales showed a strong increase over the last five years and is the primary drug addressing coccidiosis in pigs, bovines and sheep. Despite the long withdrawal periods, non-compliant reports are limited to a few in pigs, probably because coccidiosis is mainly associated with weaning, and the treated animal usually is slaughtered after a significant fattening period. Imidocarb, which is actually not a coccidiostat but an antiparasitic drug, but was not included in the previous evaluations, is currently not included in the routine analysis at all and, therefore, ends up as 'start survey'. However, considering the indication for use (Babesia and other (tick-borne) parasites in cattle, sheep, horses and dogs), use is the Netherlands is very limited since these parasites are not common in the Netherlands. However, the substance could be relevant for imported products.

A final remark should be made on the fact that for some substances there are two regulatory perspectives (the Regulation (EU) 37/2010 and the feed additive angle), which can complicate monitoring and enforcement, because MRL definitions are not fully harmonized.

5 Conclusions and recommendations

5.1 Conclusions

Both unauthorised (group A) and authorised (group B) substances were evaluated using the decision trees established previously (van Asselt et al., 2018a; van Asselt et al., 2018b). This allowed for a structured and transparent approach to classify most substances into low, medium and high priority for inclusion in the NRCP. For the group A substances, around 30% of the substance-animal product combinations received a medium or high priority due to an unknown use of the substances (Q3). This was indicated with a proviso high#1 (products were found on the internet but no FDA/EU registrations) or high#2 (registered products were found but use in the animal species is unlikely). Limited monitoring data for the group B substances resulted in the recommendation to start a survey. In case sales data were found above the threshold, this was specified with an asterisk (*1) and in case non-compliances were found in related species, this was specified as *2. The number of individual substances evaluated within each group into low, medium and high priority is indicated in the figures below.

The scope of the monitoring programs within the EU primarily focuses on substances previously found in animal products and/or substances that are known to be used within the EU. This research used a wider perspective including substances authorised in countries outside the EU, substances used for companion animals, as well as on products that are available on online marketplaces. This showed that more substances might need to be included in the NRCP, especially for products imported from outside the EU.

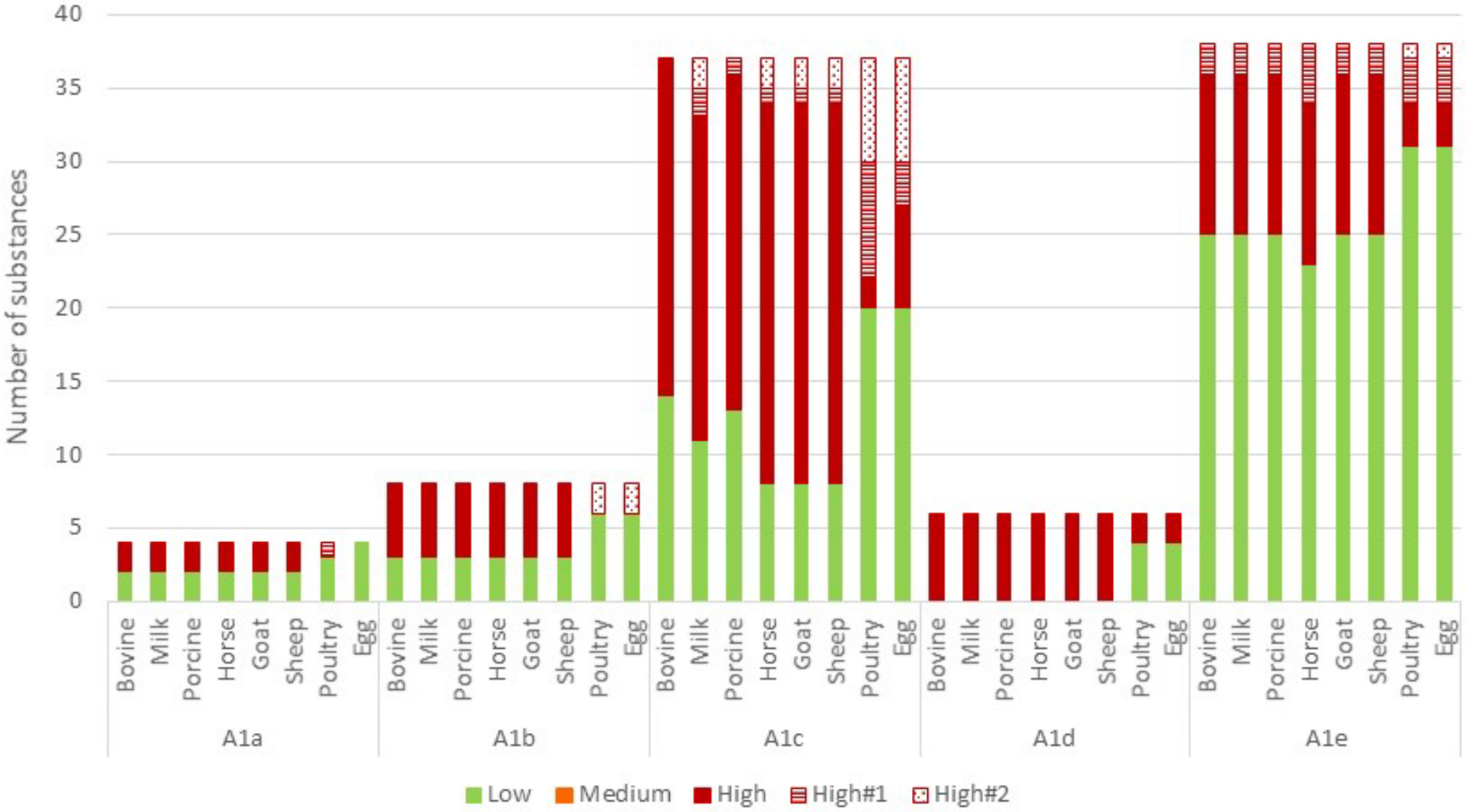

Figure 3 *Number of substances in group A1 (Substances with hormonal and thyreostatic action and beta agonists, whose use is prohibited under Directive 96/22/EC) classified as low, medium or high for stilbenes (A1a), antithyroid agents (A1b), steroids (A1c), RAL (A1d) and beta-agonists (A1e); #1 indicates products were found on the internet but no FDA/EU registrations, #2 indicates registered products were found but use in the animal species is unlikely*

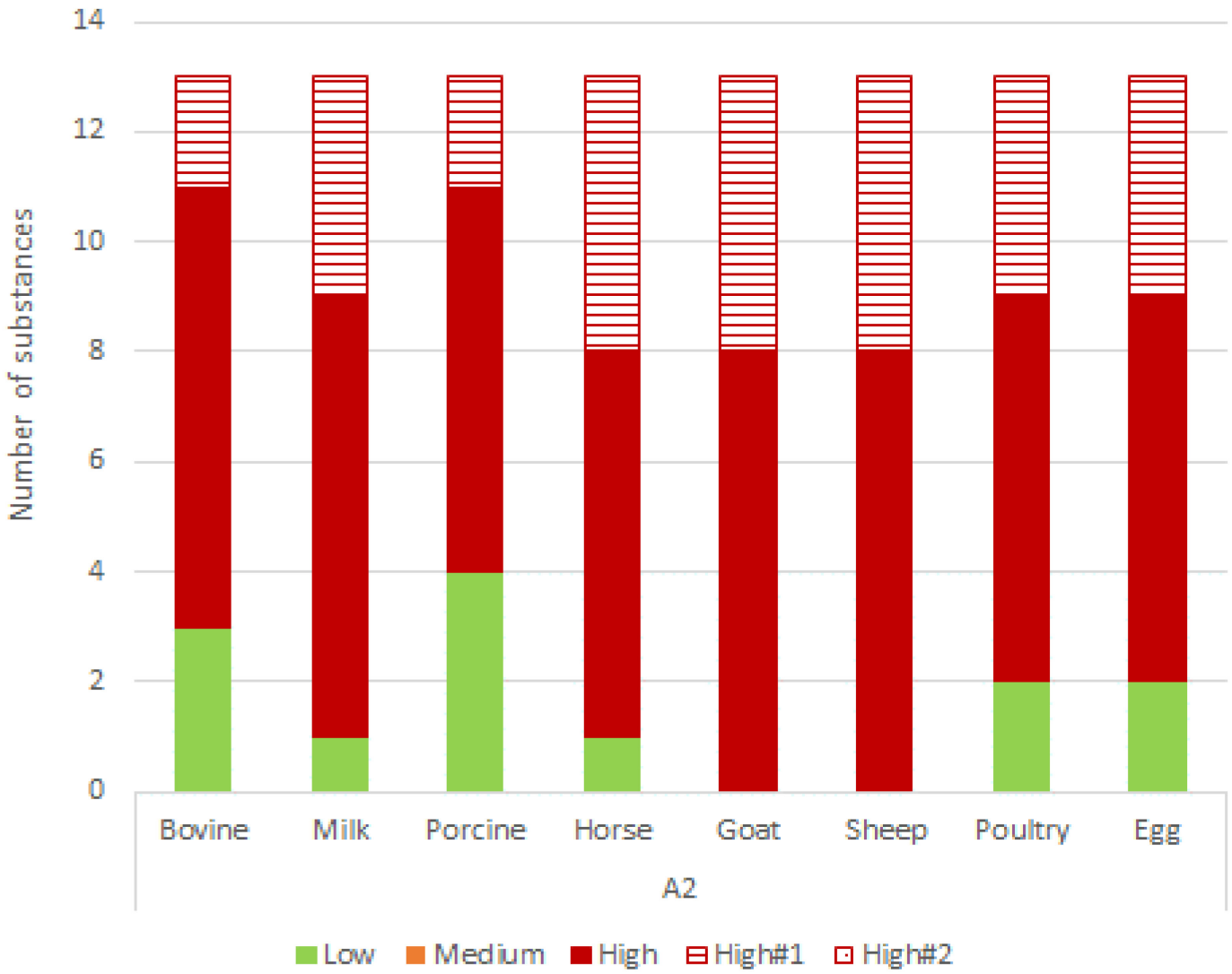

Figure 4 *Number of substances in group A2 (prohibited substances included in Table 2 of the Annex of Regulation (EU) 37/2010) classified as low, medium or high; #1 indicates products were found on the internet but no FDA/EU registrations, #2 indicates registered products were found but use in the animal species is unlikely*

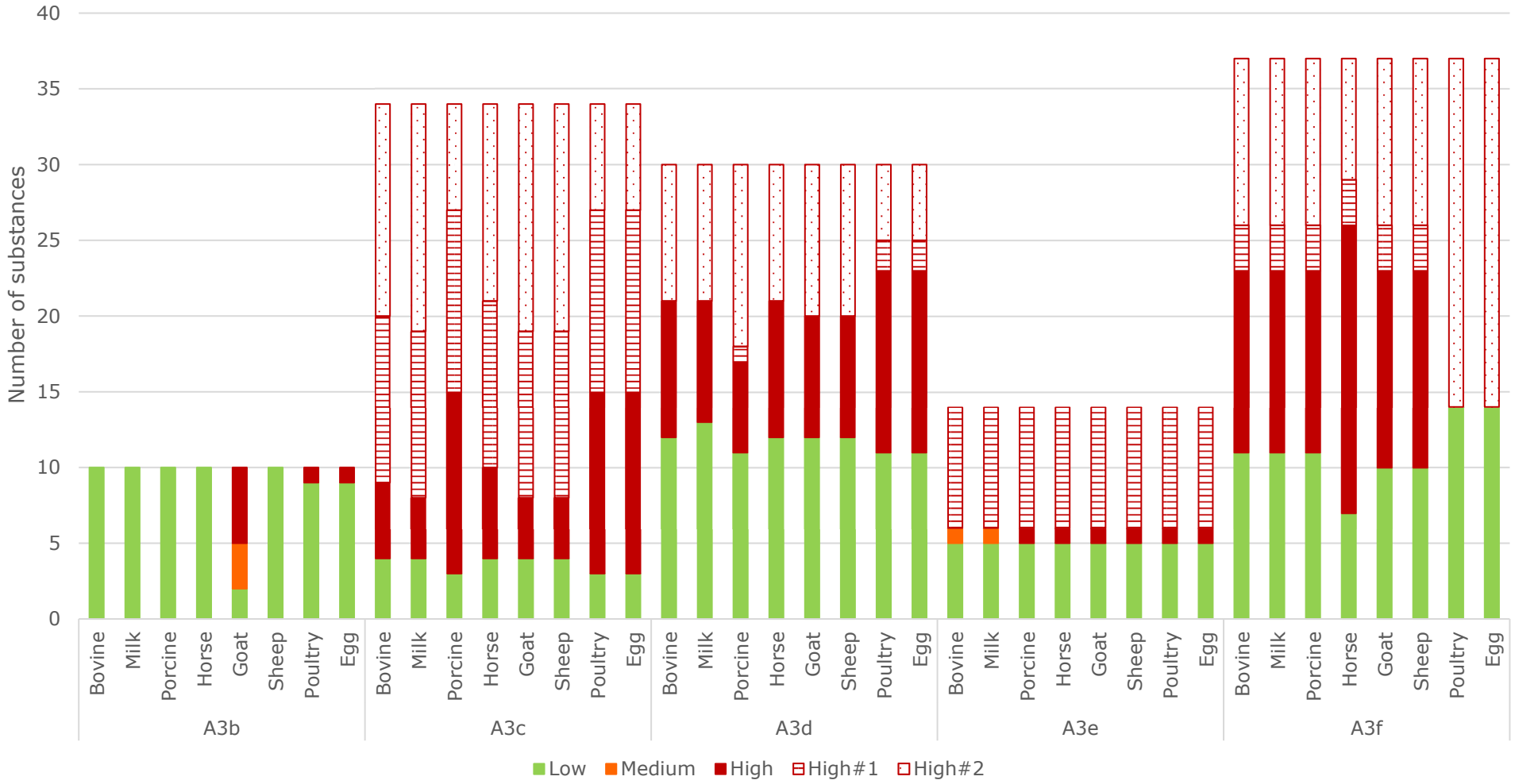

Figure 5 *Number of substances in group A3 (Pharmacologically active substances, not listed in Table 1 of the Annex to Regulation (EU) No 37/2010 or not authorised according to Regulation (EU) No 1831/2003) classified as low, medium or high for unauthorised pesticides and biocides (A3b), unauthorised antimicrobials (A3c), unauthorised coccidiostats and histomonostats (A3d), protein and peptide hormones (A3e) and unauthorised sedatives (A3f); #1 indicates products were found on the internet but no FDA/EU registrations, #2 indicates registered products were found but use in the animal species is unlikely*

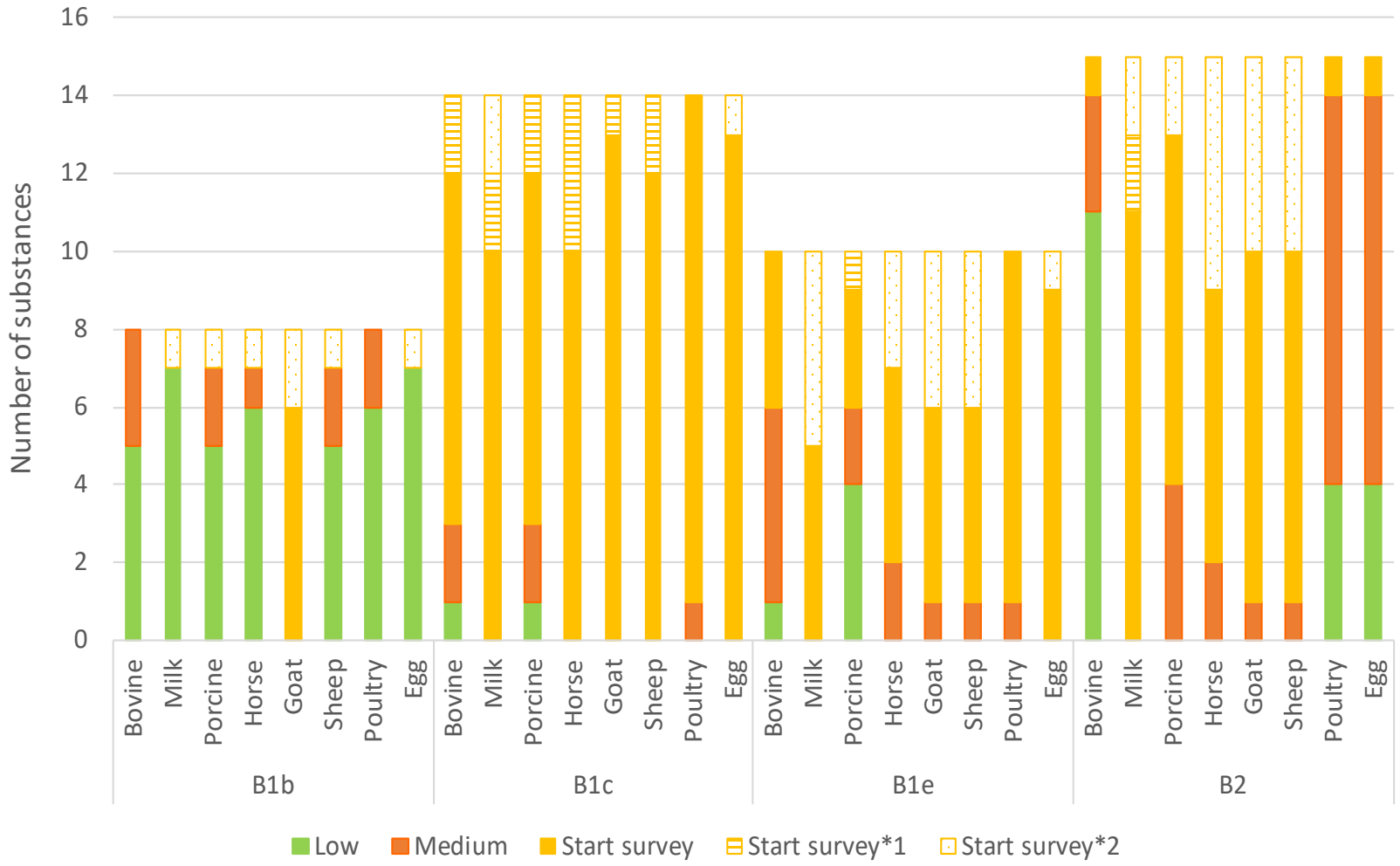

Figure 6 *Number of substances in group B (pharmacologically active substances authorised for the use in food producing animals according to Union legislation) classified as low, medium or high for authorised insecticides (B1b), authorised sedatives (B1c), other authorised substances (B1e) and authorised coccidiostats and histomonostats (B2); Start survey*1 indicates a substance that is currently not included in the NRCP, but sales data were above the threshold, Start survey*2 indicates a substance that is currently not included in the NRCP, but non-compliances were found in related species*

5.2 Recommendations

The group A substances essentially includes an endless number of substances. In this research, we limited ourselves to substances mentioned in the EURL guidance document (EURL, 2020b) supplemented with additional information obtained from monitoring data and/or authorisations outside the EU. In order to obtain a more comprehensive overview of relevant substances to evaluate, it is recommended to perform a literature research inventorying use of unauthorised substances for treatment of animals globally. Furthermore, it is recommended to share the scope of the NRCPs of the various EU MS on a substance level, to obtain a better insight in the extent to which, for specific substances, monitoring is currently limited or absent.

Moreover, it is important to keep track of new trends or developments. For example, climate change can be expected to influence the occurrence of animal diseases and related problems (e.g. parasite related diseases are expected to emerge and spread). Also changes in farming systems, driven e.g. by a demand for more sustainable production and changes in legislation may impact the veterinary drug use. It is recommended to develop a strategy for keeping track of new issues. The use of advanced internet screening tools could be part of this. WFSR has experience in applying such tools, for example, to screen social media such as Twitter on unauthorised VMPs and animal diseases. Components such as cyadox, which are currently not on the market, can be included in this 'twitter monitoring'.

A general recommendation is to include all substances that were classified as either medium or high priority in the NRCP. For some unauthorised substances (group A), indications for use (Q3) were answered as unknown. Following a worst-case approach, these substances also obtained a medium or high priority. In order to further differentiate between these priority results, provisos (high#1 or high#2) were used. In principle, it is recommended to include these substances in the NRCP. However, in case choices need to be made (e.g. for substances that cannot easily be included in the NRCP), it is recommended for the group A substances with unknown likelihood of use to focus on the substances with proviso high#1. For the authorised substances (group B), lack of monitoring data yielded the recommendation to start a survey. For these substances, it is recommended to prioritise inclusion of the substances with an asterisk indicating either a high sales volume (*1) or non-compliances were found in related species (*2).

Recommendations for specific groups of substances are given below:

- For corticosteroids (group A1c), it is recommended to start a survey on the presence of these substances in milk, which is a matrix currently not included in the NRCP, since these substances could be used to treat udder infections.
- For the prohibited substances (group A2), it is recommended to monitor nitrofurans in turkey, since currently treatment for Blackhead disease is lacking and nifursol has been reported to be used as feed additive to prevent this disease.
- For unauthorised pesticides (group A3b) and antimicrobials (group A3c), it is recommended to focus monitoring on imported products, since in countries outside the EU (such as China) several of these pesticides and antimicrobials are authorised for food producing species. It is unclear to which extent these substances are actually being used. Therefore, it is important to obtain more monitoring data on these substances in animal products.
- For unauthorised coccidiostats (group A3c), it is recommended to reconsider the individual nitroimidazoles included in the NRCP. The nitroimidazoles currently included in the analytical scope appeared hardly available, whereas several others were found to be much more commonly applied either as human medicine or in pigeons and/or used outside the EU.
- It is recommended to include flumethrin (group B1b) in the NRCP. This substance is used as insecticide VMP and not registered as pesticide. As such, it is currently not included in the pesticide monitoring. Non-compliances reported in other countries justify the inclusion in the Dutch NRCP.
- Since cabergoline (group B1e) can be used as prolactin inhibitors to improve the egg production, other (unauthorised) prolactin inhibitors could potentially be used in poultry and eggs as well. One of these is bromocriptine, classified as a dopamine agonist, and is mentioned to reduce the prolactin level. A survey on prolactin inhibitors in eggs could be considered.

- For the authorised coccidiostats (group B2), it is recommended to include amprolium in the NRCP for poultry and eggs even though so far, no non-compliances were found. This substance is included in Regulation (EU) 37/2010 under the condition 'No MRL required'. However, this does not imply no residues can be found in animal products. Since sales data recently increased (above the threshold in 2019), it is relevant to keep track of possible residues for this substance.

Another recommendation relates to the available information per animal species. For the research described in this report, it would be useful to get access to data per single species. It is, thus, recommended to report results per animal species separately. This accounts for EFSA reports that do not distinguish between goat and sheep but also for the sales data, it would be useful if a distinction between e.g. laying hens and broilers would be possible.

Acknowledgements

Marca Schrap and Jacqueline Steenbergen-Biesterbos (NVWA-BuRO) are kindly thanked for their input to this research. Hans Mol, Bjorn Berendsen, Tina Zuidema, Marloes Groenewegen, Ron Hoogenboom and Marlou van Iersel (WFSR) are kindly thanked for critically reading this report. Marlou van Iersel (WFSR) is kindly thanked for providing us additional information on the national monitoring.
Saskia Sterk (WFSR) is acknowledged for her input in the evaluation of various group A substances and for critically reading this report. Marijn Poldermans (FIDIN) is kindly thanked for providing us the necessary sales data for our research.

References

Apotheek faculteit Diergeneeskunde, 2018. Alprazolam. Available at: https://www.uu.nl/sites/default/files/dgk_apotheek_alprazolam_-_v-006.pdf

Baynes RE, Dedonder K, Kissell L, Mzyk D, Marmulak T, Smith G, Tell L, Gehring R, Davis J and Riviere JE, 2016. Health concerns and management of select veterinary drug residues. Food and Chemical Toxicology, 88, 112-122.

Becue I, Bovee TFH, Van Poucke C, Groot MJ, Nielen MWF and Van Peteghem C, 2011. Applicability of a yeast bioassay in the detection of steroid esters in hair. Analytical and Bioanalytical Chemistry, 399, 1031-1039.

Berendsen B, Pikkemaat M, Römkens P, Wegh R, van Sisseren M, Stolker L and Nielen M, 2013a. Occurrence of Chloramphenicol in Crops through Natural Production by Bacteria in Soil. Journal of Agricultural and Food Chemistry, 61, 4004-4010.

Berendsen B, Stolker L, de Jong J, Nielen M, Tserendorj E, Sodnomdarjaa R, Cannavan A and Elliott C, 2010. Evidence of natural occurrence of the banned antibiotic chloramphenicol in herbs and grass. Analytical and Bioanalytical Chemistry, 397, 1955-1963.

Berendsen BJA, Bor G, Gerritsen HW, Jansen LJM and Zuidema T, 2013b. The disposition of oxytetracycline to feathers after poultry treatment. Food Additives & Contaminants: Part A, 30, 2102-2107.

Berendsen BJA, Zuidema T, de Jong J, Stolker LAM and Nielen MWF, 2011. Discrimination of eight chloramphenicol isomers by liquid chromatography tandem mass spectrometry in order to investigate the natural occurrence of chloramphenicol. Analytica Chimica Acta, 700, 78-85.

Biddle STB, O'Donnell A, Houghton E and Creaser C, 2009. Metabolism of methyltestosterone in the greyhound. Rapid Communications in Mass Spectrometry, 23, 713-721.

Centner TJ and Petetin L, 2018. Divergent Approaches Regulating Beta Agonists and Cloning of Animals for Food: USA and European Union. Society & Animals, 1.

Centner TJ and Petetin L, 2020. Divergent Approaches Regulating Beta Agonists and Cloning of Animals for Food: USA and European Union. Society & Animals, 28, 613-632.

Cheng G, Sa W, Cao C, Guo L, Hao H, Liu Z, Wang X and Yuan Z, 2016. Quinoxaline 1,4-di-N-Oxides: Biological Activities and Mechanisms of Actions. Frontiers in pharmacology, 7, 64-64.

Danaher M, Shanahan C, Butler F, Evans R, O'Sullivan D, Glynn D, Camon T, Lawlor P and O'Keeffe M, 2016. Risk-based approach to developing a national residue sampling plan for testing under European Union regulation for veterinary medicinal products and coccidiostat feed additives in domestic animal production. Food Additives & Contaminants: Part A, 1-11.

EFSA, 2006a. Conclusion regarding the peer review of the pesticide risk assessment of the active substance dichlorvos. EFSA Journal, 4, 77r.

EFSA, 2006b. Conclusion regarding the peer review of the pesticide risk assessment of the active substance trichlorfon. EFSA Journal, 4, 76r.

EFSA, 2009a. Potential risks for public health due to the presence of nicotine in wild mushrooms. EFSA Journal, 7, 286r.

EFSA, 2009b. Safety evaluation of ractopamine. EFSA Journal, 7, 1041.

EFSA, 2009c. Scientific Opinion on Arsenic in Food. EFSA Journal, 7, 1351.

EFSA, 2011. Scientific Opinion on the risks for public health related to the presence of zearalenone in food. EFSA Journal, 9, 2197.

EFSA, 2013. Scientific Opinion on the public health hazards to be covered by inspection of meat (solipeds). EFSA Journal, 11, 3263.

EFSA, 2014a. Conclusion on the peer review of the pesticide risk assessment of the active substance esfenvalerate. EFSA Journal, 12, 3873.

EFSA, 2014b. Reasoned Opinion on the modification of the existing MRLs for malathion in various crops. EFSA Journal, 12, 3588.

EFSA, 2015. Report for 2013 on the results from the monitoring of veterinary medicinal product residues and other substances in live animals and animal products. EFSA Supporting Publications, 12, 723E.

EFSA, 2016a. Appropriateness to set a group health-based guidance value for zearalenone and its modified forms. EFSA Journal, 14, e04425.
EFSA, 2016b. Report for 2014 on the results from the monitoring of veterinary medicinal product residues and other substances in live animals and animal products. EFSA Supporting Publications, 13, 923E.
EFSA, 2016c. Review of proposed MRLs, safety evaluation of products obtained from animals treated with zilpaterol and evaluation of the effects of zilpaterol on animal health and welfare. EFSA Journal, 14, e04579.
EFSA, 2017. Report for 2015 on the results from the monitoring of veterinary medicinal product residues and other substances in live animals and animal products. EFSA Supporting Publications, 14, 1150E.
EFSA, 2018a. Report for 2016 on the results from the monitoring of veterinary medicinal product residues and other substances in live animals and animal products. EFSA Supporting Publications, 15, 1358E.
EFSA, 2018b. Review of the existing maximum residue levels for tau-fluvalinate according to Article 12 of Regulation (EC) No 396/2005. EFSA Journal, 16, e05475.
EFSA, 2019. Report for 2017 on the results from the monitoring of veterinary medicinal product residues and other substances in live animals and animal products. EFSA Supporting Publications, EN-1578, 88 p.
EFSA, 2020. Report for 2018 on the results from the monitoring of veterinary medicinal product residues and other substances in live animals and animal products. EFSA Supporting Publications, EN-1775, 74 p.
EMA, 1999. Committee for veterinary medicinal products propetamphos summary report. EMEA/MRL/626/99-FINAL July 1999,
EMA, 2004. Public Statement on Taluvian (Apomorphine Hydrochloride) Withdrawal of the Marketing Authorisation in the European Union.
EMA 2012. CVMP assessment report under Article 30(3) of Regulation (EC) No 726/2004 for dapsone as an impurity in veterinary medicinal products containing sulphamethoxazole or other sulphonamides. Available at: https://www.ema.europa.eu/en/documents/report/cvmp-assessment-report-under-article-303-regulation-ec-no-726/2004-dapsone-impurity-veterinary-medicinal-products-containing-sulphamethoxazole-other-sulphonamides_en.pdf.
EMA, 2016. Somnena: Withdrawal of the marketing authorisation application. Buprenorphine.
EMA, 2019. Categorisation of antibiotics in the European Union. Committee for Medicinal Products for Veterinary use (CVMP) and Committee for Medicinal Products for Human Use (CHMP), EMA/CVMP/CHMP/682198/2017.
EURL, 2020a. EURL Guidance on Minimum Method Performance Requirements (MMPRs) for specific Pharmacologically active Substances in specific Animal Matrices. 8 p.
EURL, 2020b. EURL Guidance on Substances included in the Substance Categories listed in Annex I of SANTE 2017/11987 - revised draft 27 January 2020. 9 p.
FAO, 1965. Evalutaion of the Toxicity of Pesticide Residues in Food. FAO Meeting Report No. PL/1965/10/1, WHO/Food Add./27.65.
FAVV, 2013. Aanwezigheid van anabole en/of verboden stoffen van endogene oorsprong bij voedselproducerende dieren (Dossier SciCom 2012/07) Advies goedgekeurd door het Wetenschappelijk Comité op 22 februari 2013.
Flajs VN and MacNeil JD, 2016. Sedatives and Tranquilizers. In: Chemical Analysis of Non-antimicrobial Veterinary Drug Residues in Food. JF Kay, JD MacNeil, J Wang. John Wiley & Sons, 311-381.
Hamscher G, Priess B, Nau H and Panariti E, 2005. Determination of Colchicine Residues in Sheep Serum and Milk Using High-Performance Liquid Chromatography Combined with Electrospray Ionization Ion Trap Tandem Mass Spectrometry. Analytical Chemistry, 77, 2421-2425.
Herrick GM, Fry JL, Damron BL and Harms RH, 1970. Evaluation of Dienestrol Diacetate (Lipamone1) Supplementation of Broiler Finisher Feeds on Pigmentation, Growth Characteristics and Market Quality2. Poultry Science, 49, 222-225.
Hertzberger S, 2020. Vergiftiging door Clenbuterol met tientallen zieken. VMT, oktober.
Huang LL, Qiu YM, Sun LL, Li J, Pan YH, Wang YL and Yuan ZH, 2018. Dietary exposure assessment of cyadox based on tissue depletion of cyadox and its major metabolites in pigs, chickens, and carp. Journal of Veterinary Pharmacology and Therapeutics, 41, 125-136.

IARC, 1979. Monographs on the evaluation of carcinogenic risks to humans. Sex hormones (II) IARC (International Agency for Research on Cancer), Volume 21.
IARC 2001. Monographs on the evaluation of carcinogenic risks to humans. Some thyrotropic agents. volume 79, Available at: http://monographs.iarc.fr/ENG/Monographs/vol79/mono79.pdf.
Jansen LJM, Bolck YJC and Berendsen BJA, 2016. Feather segmentation to discriminate between different enrofloxacin treatments in order to monitor off-label use in the poultry sector. Analytical and Bioanalytical Chemistry, 408, 495-502.
JECFA, 1991. Evaluation of certain veterinary drug residues in food. WHO technical report series, 38th report of the Joint FAO?WHO expert Committee on food additives.
JMPR, 2000. Pesticide Residues in Food Report of the 2000 FAO/WHO Joint Meeting of Experts.
JMPR, 2012. Dinotefuran (255).
Jones O and Deatherage FE, 1953. The diethylstilbestrol content of the meat from chickens treated with this estogenic substance. Journal of Food Science, 18, 30-34.
Lorenz FW, 1943. Fattening Cockerels by Stilbestrol Administration1. Poultry Science, 22, 190-191.
Martena MJ, van der Wielen JC, van de Laak LF, Konings EJ, de Groot HN and Rietjens IM, 2007. Enforcement of the ban on aristolochic acids in Chinese traditional herbal preparations on the Dutch market. Anal Bioanal Chem, 389, 263-275.
Ministry of Agriculture and Rural Affairs of China, the National Health Commission of China and the State Administration of Market Regulation 2019. National food safety standard-Maximum residue limits for veterinary drugs in foods. 76. Available at: http://31650.foodmate.net/?#/.
https://apps.fas.usda.gov/newgainapi/api/Report/DownloadReportByFileName?fileName=China%20Publishes%20Maximum%20Residue%20Limits%20for%20Veterinary%20Drugs%20in%20Food_Beijing_China%20-%20Peoples%20Republic%20of_11-30-2019.
Nordkvist E, Zuidema T, Herbes RG and Berendsen BJA, 2016. Occurrence of chloramphenicol in cereal straw in north-western Europe. Food Additives & Contaminants: Part A, 33, 798-803.
NVWA-BuRO, 2017. Advies over de risico's voor de volksgezondheid, de voedselveiligheid en het dierenwelzijn door de illegale toediening van rBST.
NVWA, 2014. Advies furazolidon in varkensvoeder. Available at: https://www.nvwa.nl/documenten/dier/diervoeder/diervoeder/risicobeoordelingen/furazolidon-in-varkensvoeder-advies.
Santman I, Luttikholt S, van den Brom R, Gonggrijp M, Hage H and Vellema P (GD,), 2013. Nulmeting antibioticagebruik bij kleine herkauwers. 33 p. Available at: https://www.tweedekamer.nl/kamerstukken/brieven_regering/detail?id=2013Z21832&did=2013D44887.
SCAN 1997. Report of the Scientific Committee for Animal Nutrition on the Extension of Use of Diclazuril (E-771) to the Feedingstuffs for Chickens Reared for Laying. Available at: https://ec.europa.eu/food/sites/food/files/safety/docs/animal-feed_additives_rules_scan-old_report_out03.pdf.
SCVPH, 1999. Opinion of the scientific committee on veterinary measures relating to public health. Assessment of potential risks to human health from hormone residues in bovine meat and meat products.
SCVPH, 2002. Opinion on review of previous SCVPH opinions. Hormones in bovine meat.
SEC 2008. Commision Staff Document on the Implementation of National Residue Monitoring Plans in the Member States in 2006 Available at: https://www.europarl.europa.eu/RegData/docs_autres_institutions/commission_europeenne/sec/2008/2375/COM_SEC(2008)2375_EN.pdf.
Sterk S, Blokland M, de Rijke E and van Ginkel L, 2014. EURL Reflection paper: Natural growth promoting substances in biological samples.
Thevis M, Geyer L, Geyer H, Guddat S, Dvorak J, Butch A, Sterk SS and Schänzer W, 2013. Adverse analytical findings with clenbuterol among U-17 soccer players attributed to food contamination issues. Drug Testing and Analysis, 5, 372-376.
Traag WA, de Rijk TC, Zomer P, Vos van Avezathe A, Kan K, Zeilmaker M and Hoogenboom LAP (RIKILT), 2005. Opname van Nicotine door kippen en overdracht naar eieren bij toepassing van Nicotine tegen bloedluis 20 p. Available at: https://edepot.wur.nl/26657.
van Asselt ED, Noordam MY, Pikkemaat MG and Dorgelo FO, 2018a. Risk-based monitoring of chemical substances in food: Prioritization by decision trees. Food Control, 93, 112-120.

van Asselt ED, Noordam MY, Pikkemaat MG, van Ginkel LA and Sterk SS (RIKILT Wageningen University and Research), 2018b. Revision of the National Residue Control Plan - Application on the Red Meat Supply Chain. 2018.003, 66 p. Available at: http://edepot.wur.nl/446468.

van Asselt ED, Pikkemaat MG, Jansen L and Hoek- van den Hil EF (RIKILT), 2019. Prioritisation of chemical substances for national monitoring - Applied to antibiotics, antiparasitic agents, carbamates and non-steroidal anti-inflammatory drugs (NSAIDs). 2019.008, 76 p. Available at: https://edepot.wur.nl/476976.

van Asselt ED, Pikkemaat MG, Jansen L and Hoek- van den Hil EF (Wageningen Food Safety Research), 2020. Prioritisation of antibiotics, antiparasitics, carbamates and NSAIDs for monitoring in horse, goat, sheep and milk. 2019.008, Available at: https://edepot.wur.nl/517744.

Wada H, Tanimoto A, Kawasaki A and Sekiba N, 1963. Estrogenic Activity in the Meat of Broilers Treated with Estrogenes. Nihon Chikusan Gakkaiho, 34, 201-206.

Wang Y, Li, X., Ke, Y., Wang, C., Zhang, Y., Ye, D., Hu, X., Zhou, L., & Xia, X., 2018. Determination of Tranquilizers in Swine Urine by Ultra-High-Performance Liquid Chromatography-Tandem Mass Spectrometry. Molecules (Basel, Switzerland), 23, 3215.

WHO, 2000. Zearalenone. Prepared by the Fifty-third meeting of the Joint FAO/WHO Expert Committee on Food Additives (JECFA). Safety Evaluation of Certain Food Additives and Contaminants, WHO Food Additives Series 44.

WHO 2017. Critically important antimicrobials for human medicine -5th revision. 48 p. Available at: http://apps.who.int/iris/bitstream/10665/255027/1/9789241512220-eng.pdf.

WHO 2018. WHO report on surveillance of antibiotic consumption: 2016-2018 early implementation. 128 p. Available at: https://apps.who.int/iris/bitstream/handle/10665/277359/9789241514880-eng.pdf?ua=1%20Annex%203.

WHO (World Health Organization), 2019a. Critically important antimicrobials for human medicine -6th revision 2018. 52 p. Available at: https://apps.who.int/iris/bitstream/handle/10665/312266/9789241515528-eng.pdf?ua=1.

WHO, 2019b. The WHO Recommended Classification of Pesticides by Hazard and Guidelines to Classification.

Yan L, Xie S, Chen D, Pan Y, Tao Y, Qu W, Liu Z, Yuan Z and Huang L, 2017. Pharmacokinetic and pharmacodynamic modeling of cyadox against Clostridium perfringens in swine. Scientific Reports, 7, 4064.

Annex 1 Prioritisation of stilbenes (group A1a)

Table A1.1 *Prioritisation of stilbenes in bovine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
diethylstilbestrol (DES)	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
Dienestrol (DE)	N	N	N	N	N	-->	-->	-->	N	-->	Low
Hexestrol (HEX)	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
Benzestrol	N	N	N	N	N	-->	-->	-->	N	-->	Low

Table A1.2 *Prioritisation of stilbenes in milk*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
diethylstilbestrol (DES)	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
Dienestrol (DE)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Hexestrol (HEX)	N	N	U	U	$Y^{B/S}$	-->	-->	-->	Y	N	High
Benzestrol	N	N	U	U	N	N	N	N	N	-->	Low

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a). Injectables/ointment/inhalation (not likely to be used in poultry)

b). Indistinct powders (powders are available, but there are doubts about their authenticity)

c.) Feed additives (Y: target species, Unl.: other animals)

d). Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e). Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A1.3 *Prioritisation of stilbenes in porcine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
diethylstilbestrol (DES)	Y	Y	U	Y	-->	-->	-->	-->	-->	N	High
Dienestrol (DE)	N	N	U	N	N	-->	-->	-->	N	-->	Low
Hexestrol (HEX)	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
Benzestrol	N	N	U	N	N	-->	-->	-->	N	-->	Low

Table A1.4 *Prioritisation of stilbenes in horse*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
diethylstilbestrol (DES)	N	N	U	U	$Y^{B/porc}$	-->	-->	-->	Y	N	High
Dienestrol (DE)	N	N	U	U	N	N	N	Unl.- b	N	-->	Low
Hexestrol (HEX)	N	N	U	U	$Y^{B/porc/S}$	-->	-->	-->	Y	N	High
Benzestrol	N	N	U	U	N	N	N	N	N	-->	Low

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A1.5 *Prioritisation of stilbenes in goat*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
diethylstilbestrol (DES)	N	N	U	U	Y[B/porc]	-->	-->	-->	Y	N	High
Dienestrol (DE)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Hexestrol (HEX)	N	N	U	U	Y[B/porc/S]	-->	-->	-->	Y	N	High
Benzestrol	N	N	U	U	N	N	N	N	N	-->	Low

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A1.6 *Prioritisation of stilbenes in sheep*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
diethylstilbestrol (DES)	N	N	U	U	Y[B/porc]	-->	-->	-->	Y	N	High
Dienestrol (DE)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Hexestrol (HEX)	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
Benzestrol	N	N	U	U	N	N	N	N	N	-->	Low

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A1.7 *Prioritisation of stilbenes in poultry*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
diethylstilbestrol (DES)	N	N	N	N	U	N	N	Y	U	N	High#1
Dienestrol (DE)	N	N	N	N	U	N	N	Unl - b	N	-->	Low
Hexestrol (HEX)	N	N	N	N	U	N	N	Unl - b	N	-->	Low
Benzestrol	N	N	N	N	U	N	N	N	N	-->	Low

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

Table A1.8 *Prioritisation of stilbenes in eggs*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
diethylstilbestrol (DES)	N	N	U	U	N	N	N	Unl - e	N	-->	Low
Dienestrol (DE)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Hexestrol (HEX)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Benzestrol	N	N	U	U	N	N	N	N	N	-->	Low

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

Annex 2 Prioritisation of antithyroid agents (group A1b)

Table A2.1 *Prioritisation of antithyroid agents in bovine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
Benzylthiouracil	N	N	U	U	U	N	N	N	N	→	Low
Ethylthiouracil	N	N	U	U	U	N	N	N	N	→	Low
Mercaptobenzi-midazol (2-benzimidazolethiol)	Y	N	U	Y	→	→	→	→	→	N	High
Methylthiouracil	Y	N	N	Y	→	→	→	→	→	N	High
Phenylthiouracil	N	N	U	U	U	N	N	Unl - b	N	→	Low
Propylthiouracil	Y	N	N	Y	→	→	→	→	→	N	High
Tapazole (methimazole)	N	N	Y	Y	→	→	→	→	→	N	High
Thiouracil	Y	N	Y	Y	→	→	→	→	→	N	High

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A2.2 *Prioritisation of antithyroid agents in milk*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
Benzylthiouracil	N	N	U	U	U	N	N	N	N	→	Low
Ethylthiouracil	N	N	U	U	U[b]	N	N	N	N	→	Low
Mercaptobenzi-midazol (2-benzimidazolethiol)	N	N	U	U	Y[b]	→	→	→	Y	N	High
Methylthiouracil	N	N	U	U	Y[b]	→	→	→	Y	N	High
Phenylthiouracil	N	N	U	U	U	N	N	Unl - b	N	→	Low
Propylthiouracil	N	N	U	U	Y[b]	→	→	→	Y	N	High
Tapazole (methimazole)	N	N	U	U	Y[b]	→	→	→	Y	N	High
Thiouracil	N	N	U	U	Y[b,g,s]	→	→	→	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A2.3 *Prioritisation of antithyroid agents in porcine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
Benzylthiouracil	N	N	U	U	U	N	N	N	N	→	Low
Ethylthiouracil	N	N	U	U	U[b]	N	N	N	N	→	Low
Mercaptobenzi-midazol (2-benzimidazolethiol)	N	N	U	U	Y[b]	→	→	→	Y	N	High
Methylthiouracil	Y	N	N	Y	→	→	→	→	→	N	High
Phenylthiouracil	N	N	U	U	U	N	N	Unl - b	N	→	Low
Propylthiouracil	Y	N	N	Y	→	→	→	→	→	N	High
Tapazole (methimazole)	N	N	N	N	Y[b]	→	→	→	Y	N	High
Thiouracil	Y	N	Y	Y	→	→	→	→	→	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A2.4 *Prioritisation of antithyroid agents in horse*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?						Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Controlled on forbidden substances list**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
Benzylthiouracil	N	N	U	U	U	N	N	N	N	N	→	Low
Ethylthiouracil	N	N	U	U	U[b]	N	N	N	N	N	→	Low
Mercaptobenzi-midazol (2-benzimidazolethiol)	N	N	U	U	Y[b]	→	→	→	→	Y	N	High
Methylthiouracil	N	N	U	U	Y[b,p]	→	→	→	→	Y	N	High
Phenylthiouracil	N	N	U	U	U	N	N	N	Unl - b	N	→	Low
Propylthiouracil	N	N	U	U	Y[b,p]	→	→	→	→	Y	N	High
Tapazole (methimazole)	N	N	U	U	Y[b]	→	→	→	→	Y	N	High
Thiouracil	N	N	Y[<10]	Y	→	→	→	→	→	→	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A2.5 *Prioritisation of antithyroid agents in goat*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
Benzylthiouracil	N	N	U	U	U	N	N	N	N	→	Low
Ethylthiouracil	N	N	U	U	U[b]	N	N	N	N	→	Low
Mercaptobenzi-midazol (2-benzimidazolethiol)	N	N	U	U	Y[b]	→	→	→	Y	N	High
Methylthiouracil	N	N	U	U	Y[b,p]	→	→	→	Y	N	High
Phenylthiouracil	N	N	U	U	U	N	N	Unl - b	N	→	Low
Propylthiouracil	N	N	U	U	Y[b,p]	→	→	→	Y	N	High
Tapazole (methimazole)	N	N	U	U	Y[b]	→	→	→	Y	N	High
Thiouracil	Y	N	Y[<10]	Y	→	→	→	→	→	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A2.6 *Prioritisation of antithyroid agents in sheep*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
Benzylthiouracil	N	N	U	U	U	N	N	N	N	→	Low
Ethylthiouracil	N	N	U	U	U[b]	N	N	N	N	→	Low
Mercaptobenzi-midazol (2-benzimidazolethiol)	N	N	U	U	Y[b]	→	→	→	Y	N	High
Methylthiouracil	N	N	U	U	Y[b,p]	→	→	→	Y	N	High
Phenylthiouracil	N	N	U	U	U	N	N	Unl - b	N	→	Low
Propylthiouracil	N	N	U	U	Y[b,p]	→	→	→	Y	N	High
Tapazole (methimazole)	N	N	U	U	Y[b]	→	→	→	Y	N	High
Thiouracil	Y	N	Y[<10]	Y	→	→	→	→	→	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A2.7 *Prioritisation of antithyroid agents in poultry*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
Benzylthiouracil	N	N	U	U	U	N	N	N	N	→	Low
Ethylthiouracil	N	N	U	U	U	N	N	N	N	→	Low
Mercaptobenzi-midazol (2-benzimidazolethiol)	N	N	U	U	U	N	N	N	N	→	Low
Methylthiouracil	N	N	U	U	U	N	N	Unl - b	N	→	Low
Phenylthiouracil	N	N	U	U	U	N	N	Unl - b	N	→	Low
Propylthiouracil	N	N	U	U	U	N	Y	Unl - b	U	N	High#2
Tapazole (methimazole)	N	N	U	U	U	N	Y	Unl - b	U	N	High#2
Thiouracil	N	N	U	U	U	N	N	Unl - b	N	→	Low

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A2.8 *Prioritisation of antithyroid agents in eggs*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
Benzylthiouracil	N	N	U	U	U	N	N	N	N	→	Low
Ethylthiouracil	N	N	U	U	U	N	N	N	N	→	Low
Mercaptobenzi-midazol (2-benzimidazolethiol)	N	N	U	U	U	N	N	N	N	→	Low
Methylthiouracil	N	N	U	U	U	N	N	Unl - b	N	→	Low
Phenylthiouracil	N	N	U	U	U	N	N	Unl - b	N	→	Low
Propylthiouracil	N	N	U	U	U	N	Y	Unl - b	U	N	High#2
Tapazole (methimazole)	N	N	U	U	U	N	Y	Unl - b	U	N	High#2
Thiouracil	N	N	U	U	U	N	N	Unl - b	N	→	Low

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Annex 3 Prioritisation of steroids (group A1c)

Table A3.1 *Prioritisation of steroids in bovine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
1,4-androstadiene-3,17-dione (Androstadienedione (ADD))	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
16β-hydroxy-stanozolol	N	N	N	N	N	-->	-->	-->	N	-->	Low
17α-1-testosterone	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
17α-Boldenone	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
17α-Estradiol	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
17α-methyl-5β-androstane-3α,17β-diol (MEAD I)	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
17α-Nortestosterone (4-estren-17α-ol-3-one)	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
17α-Testosterone (4-Androsten-17α-ol-3-one)	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
17α-Trenbolone	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17β-Boldenone	Y	Y	N	Y	-->	-->	-->	-->	-->	N	High
17β-estradiol	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
17β-Nortestosterone (β-nandrolone)	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
17β-Testosterone (4-Androsten-17β-ol-3-one)	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
17β-Trenbolone	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
19-norepiandrosterone	N	N	U	U	Y[porcine]	-->	-->	-->	Y	N	High
beclomethasone	N	N	N	N	N	-->	-->	-->	N	-->	Low
Boldione	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
Ciclesonide	N	N	U	U	U	N	N	Unl - b	N	-->	Low

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
CLAD (4-chloro-4-androst-3,17-dione) (chlorandrostenedione)	N	N	N	N	N	-->	-->	-->	N	-->	Low
clobetasol	N	N	N	N	N	-->	-->	-->	N	-->	Low
Clostebol (CLTb) (4-androsten-4-chloro-17β-ol-3-one)	N	N	N	N	N	-->	-->	-->	N	-->	Low
Cortisol (Hydrocortisone)	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
Cortisone	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
estrone	N	N	N	N	N	-->	-->	-->	N	-->	low
Ethinylestradiol (EE2)	N	N	N	N	Y^{S}	-->	-->	-->	Y	N	High
flumethasone	N	N	N	N	$Y^{porcine}$	-->	-->	-->	Y	N	High
isoflupredone	N	N	N	N	N	-->	-->	-->	N	-->	Low
Medroxyprogesterone	N	N	N	N	N	-->	-->	-->	N	-->	Low
Megestrol	N	N	N	N	N	-->	-->	-->	N	-->	Low
Melengestrol	N	N	N	N	N	-->	-->	-->	N	-->	Low
Methylboldenone (1,4-Androstadien-17α-methyl-17β-ol-3-one)	N	N	N	N	N	-->	-->	-->	N	-->	low
Methyltestosterone	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
Noretiocholanolone	N	N	U	U	$Y^{porcine}$	-->	-->	-->	Y	N	High
Prednisone	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
Progesterone (P1) (4-Pregnene-3,20-dione (Pregnen(4)-3,20-dione))	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
Stanozolol	N	N	N	N	N	-->	-->	-->	N	-->	Low
triamcinolone	N	N	N	N	N	-->	-->	-->	N	-->	Low

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A3.2 *Prioritisation of steroids in milk*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
1,4-androstadiene-3,17-dione (Androstadienedione (ADD))	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High#1
16β-hydroxy-stanozolol	N	N	U	U	N	N	N	N	N	-->	Low
17α-1-testosterone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
17α-Boldenone	N	N	U	U	Y[B/G/S]	-->	-->	-->	Y	N	High
17α-Estradiol	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
17α-methyl-5β-androstan-3α,17β-diol (MEAD I)	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
17α-Nortestosterone (4-estren-17α-ol-3-one)	N	N	U	U	Y[B/G/S]	-->	-->	-->	Y	N	High
17α-Testosterone (4-Androsten-17α-ol-3-one)	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
17α-Trenbolone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
17β-Boldenone	N	N	U	U	Y[B/G/S]	-->	-->	-->	Y	N	High
17β-estradiol	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
17β-Nortestosterone (β-nandrolone)	N	N	U	U	Y[B/G/S]	-->	-->	-->	Y	N	High
17β-Testosterone (4-Androsten-17β-ol-3-one)	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
17β-Trenbolone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
19-norepiandrosterone	N	N	U	U	N	N	N	N	N	-->	Low
beclomethasone	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Boldione	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
Ciclesonide	N	N	U	U	U	N	N	Unl - b	N	-->	Low
CLAD (4-chloro-4-androst-3,17-dione) (chloorandrosteendion)	N	N	U	U	N	N	N	N	N	-->	Low
clobetasol	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Clostebol (CLTb) (4-androsten-4-chloro-17β-ol-3-one)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Cortisol (Hydrocortisone)	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
Cortisone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
estrone	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Ethinylestradiol (EE2)	N	N	U	U	Y[S]	-->	-->	-->	Y	N	High
flumethasone	N	N	U	U	N	N	N	Unl - b	N	-->	Low
isoflupredone	N	N	U	U	N	Y	N	Unl - b	Y	N	High
Medroxyprogesterone	N	N	U	U	N	N	Y - c/d/S	Unl - b	U	N	High#2

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
Megestrol	N	N	U	U	N	N	Y - c/d	Y	Y	N	High
Melengestrol	N	N	U	U	N	Y - B	N	Unl - b	U	N	High#2
Methylboldenone (1,4-Androstadien-17α-methyl-17β-ol-3-one)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Methyltestosterone	N	N	U	U	Y[B/G/S]	-->	-->	-->	y	N	High
Noretiocholanolone	N	N	U	U	N	N	N	N	N	-->	Low
Prednisone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
Progesterone (P1) (4-Pregnene-3,20-dione (Pregnen(4)-3,20-dione))	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
Stanozolol	N	N	U	U	N	N	N	Y	U	N	High#1
triamcinolone	N	N	U	U	N	Y	Y - c/d	Y	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A3.3 *Prioritisation of steroids in porcine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
1,4-androstadiene-3,17-dione (Androstadienedione (ADD))	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
16β-hydroxy-stanozolol	N	N	U	U	N	N	N	N	N	-->	Low
17α-1-testosterone	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
17α-Boldenone	N	N	U	U	$Y^{B/G/S}$	-->	-->	-->	Y	N	High
17α-Estradiol	N	N	U	U	$Y^{B/poultry}$	-->	-->	-->	Y	N	High
17α-methyl-5β-androstan-3α,17β-diol (MEAD I)	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
17α-Nortestosterone (4-estren-17α-ol-3-one)	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17α-Testosterone (4-Androsten-17α-ol-3-one)	N	N	U	U	$Y^{B/H/poultry}$	-->	-->	-->	Y	N	High
17α-Trenbolone	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17β-Boldenone	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17β-estradiol	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
17β-Nortestosterone (β-nandrolone)	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17β-Testosterone (4-Androsten-17β-ol-3-one)	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
17β-Trenbolone	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
19-norepiandrosterone	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
beclomethasone	N	N	N	N	N	-->	-->	-->	N	-->	Low
Boldione	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
Ciclesonide	N	N	U	U	U	N	N	Unl - b	N	-->	Low
CLAD (4-chloro-4-androst-3,17-dione) (chloorandrosteendion)	N	N	U	U	N	N	N	N	N	-->	Low
clobetasol	N	N	N	N	N	-->	-->	-->	N	-->	Low
Clostebol (CLTb) (4-androsten-4-chloro-17β-ol-3-one)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Cortisol (Hydrocortisone)	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
Cortisone	N	N	N	N	Y^{B}	-->	-->	-->	Y	N	High
estrone	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Ethinylestradiol (EE2)	N	N	U	U	Y^{S}	-->	-->	-->	Y	N	High
flumethasone	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
isoflupredone	N	N	N	N	N	-->	-->	-->	N	-->	Low

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
Medroxyprogesterone	N	N	N	N	N	-->	-->	-->	N	-->	Low
Megestrol	N	N	N	N	N	-->	-->	-->	N	-->	Low
Melengestrol	N	N	N	N	N	-->	-->	-->	N	-->	Low
Methylboldenone (1,4-Androstadien-17α-methyl-17β-ol-3-one)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Methyltestosterone	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
Noretiocholanolone	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
Prednisone	N	N	N	N	Y[B]	-->	-->	-->	Y	N	High
Progesterone (P1) (4-Pregnene-3,20-dione (Pregnen(4)-3,20-dione))	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
Stanozolol	N	N	U	U	N	N	N	Y	U	N	High#1
triamcinolone	N	N	N	N	N	-->	-->	-->	N	-->	Low

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A3.4 *Prioritisation of steroids in horse*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
1,4-androstadiene-3,17-dione (Androstadienedione (ADD))	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
16β-hydroxy-stanozolol	N	N	U	U	N	N	N	N	N	-->	Low
17α-1-testosterone	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
17α-Boldenone	N	N	U	U	$Y^{B/G/S}$	-->	-->	-->	Y	N	High
17α-Estradiol	N	N	U	U	$Y^{B/poultry}$	-->	-->	-->	Y	N	High
17α-methyl-5β-androstan-3α,17β-diol (MEAD I)	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
17α-Nortestosterone (4-estren-17α-ol-3-one)	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17α-Testosterone (4-Androsten-17α-ol-3-one)	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
17α-Trenbolone	N	N	U	U	$Y^{B/porc}$	-->	-->	-->	Y	N	High
17β-Boldenone	N	N	U	U	$Y^{B/G/S/porc}$	-->	-->	-->	Y	N	High
17β-estradiol	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
17β-Nortestosterone (β-nandrolone)	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17β-Testosterone (4-Androsten-17β-ol-3-one)	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
17β-Trenbolone	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
19-norepiandrosterone	N	N	U	U	Y^{porc}	-->	-->	-->	Y	N	High
beclomethasone	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Boldione	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
Ciclesonide	N	N	U	U	U	N	N	Unl - b	N	-->	Low
CLAD (4-chloro-4-androst-3,17-dione) (chloorandrosteendion)	N	N	U	U	N	N	N	N	N	-->	Low
clobetasol	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Clostebol (CLTb) (4-androsten-4-chloro-17β-ol-3-one)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Cortisol (Hydrocortisone)	N	N	U	U	$Y^{B/porc}$	-->	-->	-->	Y	N	High
Cortisone	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
estrone	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Ethinylestradiol (EE2)	N	N	U	U	Y^{S}	-->	-->	-->	Y	N	High
flumethasone	N	N	U	U	Y^{porc}	-->	-->	-->	Y	N	High
isoflupredone	N	N	U	U	N	Y	N	Unl - b	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
Medroxyprogesterone	N	N	U	U	N	N	Y - c/d/S	Unl - b	U	N	High#2
Megestrol	N	N	U	U	N	N	Y - c/d	Y	Y	N	High
Melengestrol	N	N	U	U	N	Y - B	N	Unl - b	U	N	High#2
Methylboldenone (1,4-Androstadien-17α-methyl-17β-ol-3-one)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Methyltestosterone	Y	Y	U	Y	-->	-->	-->	-->	-->	N	High
Noretiocholanolone	N	N	U	U	Y^{porc}	-->	-->	-->	Y	N	High
Prednisone	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
Progesterone (P1) (4-Pregnene-3,20-dione (Pregnen(4)-3,20-dione))	N	N	U	U	Y^{B}	-->	-->	-->	Y	N	High
Stanozolol	N	N	U	U	N	N	N	Y	U	N	High#1
triamcinolone	N	N	U	U	N	Y	Y - c/d	Y	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A3.5 *Prioritisation of steroids in goat*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
1,4-androstadiene-3,17-dione (Androstadienedione (ADD))	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
16β-hydroxy-stanozolol	N	N	U	U	N	N	N	N	N	-->	Low
17α-1-testosterone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
17α-Boldenone	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17α-Estradiol	N	N	U	U	Y[B/poultry]	-->	-->	-->	Y	N	High
17α-methyl-5β-androstan-3α,17β-diol (MEAD I)	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
17α-Nortestosterone (4-estren-17α-ol-3-one)	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17α-Testosterone (4-Androsten-17α-ol-3-one)	N	N	U	U	Y[B/H/poultry]	-->	-->	-->	Y	N	High
17α-Trenbolone	N	N	U	U	Y[B/porc]	-->	-->	-->	Y	N	High
17β-Boldenone	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17β-estradiol	N	N	U	U	Y[B/poultry]	-->	-->	-->	Y	N	High
17β-Nortestosterone (β-nandrolone)	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17β-Testosterone (4-Androsten-17β-ol-3-one)	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
17β-Trenbolone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
19-norepiandrosterone	N	N	U	U	Y[porc]	-->	-->	-->	Y	N	High
beclomethasone	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Boldione	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
Ciclesonide	N	N	U	U	U	N	N	Unl - b	N	-->	Low
CLAD (4-chloro-4-androst-3,17-dione) (chloorandrosteendion)	N	N	U	U	N	N	N	N	N	-->	Low
clobetasol	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Clostebol (CLTb) (4-androsten-4-chloro-17β-ol-3-one)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Cortisol (Hydrocortisone)	N	N	U	U	Y[B/porc]	-->	-->	-->	Y	N	High
Cortisone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
estrone	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Ethinylestradiol (EE2)	N	N	U	U	Y[S]	-->	-->	-->	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
flumethasone	N	N	U	U	Y[porc]	-->	-->	-->	Y	N	High
isoflupredone	N	N	U	U	N	Y	N	Unl - b	Y	N	High
Medroxyprogesterone	N	N	U	U	N	N	Y - c/d/S	Unl - b	U	N	High#2
Megestrol	N	N	U	U	N	N	Y - c/d	Y	Y	N	High
Melengestrol	N	N	U	U	N	Y - B	N	Unl - b	U	N	High#2
Methylboldenone (1,4-Androstadien-17α-methyl-17β-ol-3-one)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Methyltestosterone	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
Noretiocholanolone	N	N	U	U	Y[porc]	-->	-->	-->	Y	N	High
Prednisone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
Progesterone (P1) (4-Pregnene-3,20-dione (Pregnen(4)-3,20-dione))	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
Stanozolol	N	N	U	U	N	N	N	Y	U	N	High#1
triamcinolone	N	N	U	U	N	Y	Y - c/d	Y	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A3.6 *Prioritisation of steroids in sheep*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
1,4-androstadiene-3,17-dione (Androstadienedione (ADD))	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
16β-hydroxy-stanozolol	N	N	U	U	N	N	N	N	N	-->	Low
17α-1-testosterone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
17α-Boldenone	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17α-Estradiol	N	N	U	U	Y[B/poultry]	-->	-->	-->	Y	N	High
17α-methyl-5β-androstan-3α,17β-diol (MEAD I)	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
17α-Nortestosterone (4-estren-17α-ol-3-one)	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17α-Testosterone (4-Androsten-17α-ol-3-one)	N	N	U	U	Y[B/H/poultry]	-->	-->	-->	Y	N	High
17α-Trenbolone	N	N	U	U	Y[B/porc]	-->	-->	-->	Y	N	High
17β-Boldenone	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17β-estradiol	N	N	U	U	Y[B/poultry]	-->	-->	-->	Y	N	High
17β-Nortestosterone (β-nandrolone)	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
17β-Testosterone (4-Androsten-17β-ol-3-one)	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
17β-Trenbolone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
19-norepiandrosterone	N	N	U	U	Y[porc]	-->	-->	-->	Y	N	High
beclomethasone	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Boldione	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
Ciclesonide	N	N	U	U	U	N	N	Unl - b	N	-->	Low
CLAD (4-chloro-4-androst-3,17-dione) (chloorandrosteendion)	N	N	U	U	N	N	N	N	N	-->	Low
clobetasol	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Clostebol (CLTb) (4-androsten-4-chloro-17β-ol-3-one)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Cortisol (Hydrocortisone)	N	N	U	U	Y[B/porc]	-->	-->	-->	Y	N	High
Cortisone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
estrone	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Ethinylestradiol (EE2)	N	N	Y	Y	-->	-->	-->	-->	-->	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
flumethasone	N	N	U	U	Y[porc]	-->	-->	-->	Y	N	High
isoflupredone	N	N	U	U	N	Y	N	Unl - b	Y	N	High
Medroxyprogesterone	N	N	U	U	N	N	Y - c/d/s	Unl - b	U	N	High#2
Megestrol	N	N	U	U	N	N	Y - c/d	Y	Y	N	High
Melengestrol	N	N	U	U	N	Y - B	N	Unl - b	U	N	High#2
Methylboldenone (1,4-Androstadien-17α-methyl-17β-ol-3-one)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Methyltestosterone	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
Noretiocholanolone	N	N	U	U	Y[porc]	-->	-->	-->	Y	N	High
Prednisone	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
Progesterone (P1) (4-Pregnene-3,20-dione (Pregnen(4)-3,20-dione))	N	N	U	U	Y[B]	-->	-->	-->	Y	N	High
Stanozolol	N	N	U	U	N	N	N	Y	U	N	High#1
triamcinolone	N	N	U	U	N	Y	Y - c/d	Y	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A3.7 *Prioritisation of steroids in poultry*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
1,4-androstadiene-3,17-dione (Androstadienedione (ADD))	N	N	U	U	U	N	N	N	N	-->	Low
16β-hydroxy-stanozolol	N	N	N	N	U	N	N	N	N	-->	Low
17α-1-testosterone	N	N	N	N	U	N	N	Unl - a	N	-->	Low
17α-Boldenone	N	N	N	N	U	N	N	Unl - a	N	-->	Low
17α-Estradiol	N	N	Y	Y	-->	-->	-->	-->	-->	N	High#1
17α-methyl-5β-androstan-3α,17β-diol (MEAD I)	N	N	N	N	U	N	N	N	N	-->	Low
17α-Nortestosterone (4-estren-17α-ol-3-one)	N	N	N	N	U	N	N	Unl - a	N	-->	Low
17α-Testosterone (4-Androsten-17α-ol-3-one)	N	N	Y	Y	-->	-->	-->	-->		N	High#1
17α-Trenbolone	N	N	N	N	U	Y	N	Unl - a	U	N	High#2
17β-Boldenone	N	N	N	N	U	N	N	Unl - a	N	-->	Low
17β-estradiol	N	N	Y	Y	-->	-->	-->	-->	-->	N	High#1
17β-Nortestosterone (β-nandrolone)	N	N	N	N	U	N	N	Unl - a	N	-->	Low
17β-Testosterone (4-Androsten-17β-ol-3-one)	N	N	N	N	U	Y - B	N	N	N	-->	Low
17β-Trenbolone	N	N	N	N	U	Y	N	Unl - a	U	N	High#2
19-norepiandrosterone	N	N	U	U	U	N	N	N	N	-->	Low
beclomethasone	N	N	U	U	U	N	N	Unl - b	N	-->	Low
Boldione	N	N	N	N	U	N	N	N	N	-->	Low
Ciclesonide	N	N	U	U	U	N	N	Unl - b	N	-->	Low
CLAD (4-chloro-4-androst-3,17-dione) (chloorandrosteendion)	N	N	N	N	U	N	N	N	N	-->	Low
clobetasol	N	N	N	N	U	N	N	Unl - b	N	-->	Low
Clostebol (CLTb) (4-androsten-4-chloro-17β-ol-3-one)	N	N	N	N	U	N	N	Unl - b	N	-->	Low
Cortisol (Hydrocortisone)	N	N	U	U	U	Y - H	Y - c/d	Unl - a	U	N	High#2
Cortisone	N	N	U	U	U	N	N	Unl - a	N	-->	Low
estrone	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
Ethinylestradiol (EE2)	N	N	N	N	U	N	N	Y	U	N	High#1

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
flumethasone	N	N	N	N	U	N	N	Unl - b	N	-->	Low
isoflupredone	N	N	N	N	N	Y	N	Unl - a	U	N	High#2
Medroxyprogesterone	N	N	N	N	U	N	Y - c/d/S	Unl. - b	U	N	High#2
Megestrol	N	N	N	N	U	N	Y - c/d	Y	Y	N	High#1
Melengestrol	N	N	N	N	U	Y - B	N	Unl. - b	U	N	High#2
Methylboldenone (1,4-Androstadien-17α-methyl-17β-ol-3-one)	N	N	N	N	U	N	N	Unl - b	N	-->	Low
Methyltestosterone	N	N	N	N	U	N	N	Y	U	N	High#1
Noretiocholanolone	N	N	U	U	U	N	N	N	N	-->	Low
Prednisone	N	N	U	U	U	N	Y - c/d	Unl - b	U	N	High#2
Progesterone (P1) (4-Pregnene-3,20-dione (Pregnen(4)-3,20-dione))	N	N	Y	N	-->	-->	-->	-->		N	High#1
Stanozolol	N	N	N	N	U	N	N	Y	U	N	High#1
triamcinolone	N	N	U	U	U	Y	Y - c/d	Y	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A3.8 *Prioritisation of steroids in eggs*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
1,4-androstadiene-3,17-dione (Androstadienedione (ADD))	N	N	U	U	N	N	N	N	N	-->	Low
16β-hydroxy-stanozolol	N	N	U	U	N	N	N	N	N	-->	Low
17α-1-testosterone	N	N	U	U	N	N	N	Unl - a	N	-->	Low
17α-Boldenone	N	N	U	U	N	N	N	Unl - a	N	-->	Low
17α-Estradiol	N	N	U	U	Y[poultry]	-->	-->	-->	Y	N	High
17α-methyl-5β-androstan-3α,17β-diol (MEAD I)	N	N	U	U	N	N	N	N	N	-->	Low
17α-Nortestosterone (4-estren-17α-ol-3-one)	N	N	U	U	N	N	N	Unl - a	N	-->	Low
17α-Testosterone (4-Androsten-17α-ol-3-one)	N	N	U	U	Y[poultry]	-->	-->	-->	Y	N	High
17α-Trenbolone	N	N	U	U	N	Y	N	Unl - a	U	N	High#2
17β-Boldenone	N	N	U	U	N	N	N	Unl - a	N	-->	Low
17β-estradiol	N	N	U	U	Y[poultry]	-->	-->	-->	Y	N	High
17β-Nortestosterone (β-nandrolone)	N	N	U	U	N	N	N	Unl - a	N	-->	Low
17β-Testosterone (4-Androsten-17β-ol-3-one)	N	N	U	U	N	Y - B	N	N	N	-->	Low
17β-Trenbolone	N	N	U	U	N	Y	N	Unl - a	U	N	High#2
19-norepiandrosterone	N	N	U	U	N	N	N	N	N	-->	Low
beclomethasone	N	N	U	U	U	N	N	Unl - b	N	-->	Low
Boldione	N	N	U	U	N	N	N	N	N	-->	Low
Ciclesonide	N	N	U	U	U	N	N	Unl - b	N	-->	Low
CLAD (4-chloro-4-androst-3,17-dione) (chloorandrosteendion)	N	N	U	U	N	N	N	N	N	-->	Low
clobetasol	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Clostebol (CLTb) (4-androsten-4-chloro-17β-ol-3-one)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Cortisol (Hydrocortisone)	N	N	U	U	U	Y	Y - c/d	Unl - a	U	N	High#2
Cortisone	N	N	U	U	U	N	N	Unl - a	N	-->	Low
estrone	N	N	U	U	Y[poultry]	-->	-->	-->	Y	N	High
Ethinylestradiol (EE2)	N	N	U	U	N	N	N	Y	U	N	High#1
flumethasone	N	N	U	U	N	N	N	Unl - b	N	-->	Low

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
isoflupredone	N	N	U	U	N	Y	N	Unl - a	U	N	High#2
Medroxyprogesterone	N	N	U	U	N	N	Y - c/d/S	Unl. - b	U	N	High#2
Megestrol	N	N	U	U	N	N	Y - c/d	Y	Y	N	High
Melengestrol	N	N	U	U	N	Y	N	Unl. - b	U	N	High#2
Methylboldenone (1,4-Androstadien-17α-methyl-17β-ol-3-one)	N	N	U	U	N	N	N	Unl - b	N	-->	Low
Methyltestosterone	N	N	U	U	N	N	N	Y	U	N	High#1
Noretiocholanolone	N	N	U	U	N	N	N	N	N	-->	Low
Prednisone	N	N	U	U	U	N	Y - c/d	Unl - b	U	N	High#2
Progesterone (P1) (4-Pregnene-3,20-dione (Pregnen(4)-3,20-dione))	N	N	U	U	Y[poultry]	-->	-->	-->	Y	N	High
Stanozolol	N	N	U	U	N	N	N	Y	U	N	High#1
triamcinolone	N	N	U	U	U	Y	Y - c/d	Y	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Annex 4 Prioritisation of RALs (group A1d)

Table A4.1 *Prioritisation of RALs in bovine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
Zearalanone	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
Zearalenone	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
α-zearalanol (Zeranol)	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
β-zearalanol (Taleranol)	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
α-zearalenol	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
β-zearalenol	Y	N	N	Y	-->	-->	-->	-->	-->	N	High

Table A4.2 *Prioritisation of RALs in milk*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
Zearalanone	N	N	U	U	Y - B/porc	-->	-->	-->	Y	N	High
Zearalenone	N	N	U	U	Y - B/porc/G/S/H/poul	-->	-->	-->	Y	N	High
α-zearalanol (Zeranol)	N	N	U	U	Y - B/porc/G/S/H/poul	-->	-->	-->	Y	N	High
β-zearalanol (Taleranol)	N	N	U	U	Y - B/porc/G/S/H	-->	-->	-->	Y	N	High
α-zearalenol	N	N	U	U	Y - B/G/S	-->	-->	-->	Y	N	High
β-zearalenol	N	N	U	U	Y - B/G/S	-->	-->	-->	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Table A4.3 *Prioritisation of RALs in porcine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
Zearalanone	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
Zearalenone	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
α-zearalanol (Zeranol)	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
β-zearalanol (Taleranol)	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
α-zearalenol	N	N	N	N	Y - B/G/S	-->	-->	-->	Y	N	High
β-zearalenol	N	N	N	N	Y - B/G/S	-->	-->	-->	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Table A4.4 *Prioritisation of RALs in horse*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
Zearalanone	N	N	N	N	Y - B/porc	-->	-->	-->	Y	N	High
Zearalenone	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
α-zearalanol (Zeranol)	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
β-zearalanol (Taleranol)	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
α-zearalenol	N	N	Y	Y	-->	-->	-->	-->	-->	N	High
β-zearalenol	N	N	Y	Y	-->	-->	-->	-->	-->	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Table A4.5 *Prioritisation of RALs in goat*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
Zearalanone	N	N	U	U	Y - B/porc	-->	-->	-->	Y	N	High
Zearalenone	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
α-zearalanol (Zeranol)	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
β-zearalanol (Taleranol)	Y	N	U	Y	-->	-->	-->	-->	-->	N	High
α-zearalenol	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
β-zearalenol	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Table A4.6 *Prioritisation of RALs in sheep*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
Zearalanone	N	N	N	N	Y - B/porc	-->	-->	-->	Y	N	High
Zearalenone	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
α-zearalanol (Zeranol)	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
β-zearalanol (Taleranol)	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
α-zearalenol	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High
β-zearalenol	Y	N	Y	Y	-->	-->	-->	-->	-->	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Table A4.7 *Prioritisation of RALs in poultry*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
Zearalanone	N	N	N	N	U	N	N	N	N	-->	Low
Zearalenone	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
α-zearalanol (Zeranol)	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
β-zearalanol (Taleranol)	N	N	N	N	U	N	N	N	N	-->	Low
α-zearalenol	N	N	N	N	U	N	N	N	N	-->	Low
β-zearalenol	N	N	N	N	U	N	N	N	N	-->	Low

Table A4.8 *Prioritisation of RALs in eggs*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
Zearalanone	N	N	U	U	N	N	N	N	N	-->	Low
Zearalenone	N	N	U	U	Y - B/porc/G/S/H/poul	-->	-->	-->	Y	N	High
α-zearalanol (Zeranol)	N	N	U	U	Y - B/porc/G/S/H/poul	-->	-->	-->	Y	N	High
β-zearalanol (Taleranol)	N	N	U	U	N	N	N	N	N	-->	Low
α-zearalenol	N	N	U	U	N	N	N	N	N	-->	Low
β-zearalenol	N	N	U	U	N	N	N	N	N	-->	Low

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog

Annex 5 Prioritisation of Beta-agonists (group A1e)

Table A5.1 *Prioritisation of Beta-agonists in bovine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
Bambuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Bamethane	U	U	U	U	U	N	N	Unl - b	N	→	Low
Brombuterol	N	N	N	N	N	→	→	→	N	→	Low
Buctopamine	U	U	U	U	U	N	N	N	N	→	Low
Carbuterol	U	U	U	U	U	N	N	N	N	→	Low
Chlorbrombuterol (Bromchlorbuterol)	N	N	N	N	N	→	→	→	N	→	Low
Cimaterol	N	N	Y	Y	→	→	→	→	→	N	High
Cimbuterol	N	N	N	N	N	→	→	→	N	→	Low
Clencyclohexerol	N*	N	N	N*	N	→	→	→	N	→	Low
Clenhexerol	U	U	U	U	U	N	N	N	N	→	Low
Clen-iso-hexerol	U	U	U	U	U	N	N	N	N	→	Low
Clenisopenterol	U	U	U	U	U	N	N	N	N	→	Low
Clenpenterol	N*	N	N	N*	N	→	→	→	N	→	Low
Clenproperol	N	N	N	N	N	→	→	→	N	→	Low
Clorprenalin	U	U	U	U	U	N	N	Unl - b	N	→	Low
Colterol	U	U	U	U	U	N	N	N	N	→	Low
Fenoterol	N	N	N	N	Y[g]	→	→	→	Y	N	High
Formoterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Hydroxymethylclenbuterol	Y	N	N	Y	→	→	→	→	→	N	High
Isoprenalin	U	U	U	U	U	N	N	Y	U	N	High#1

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
Isoxsuprine	Y	N	N*	Y	→	→	→	→	→	N	High
Labetalol	U	U	U	U	U	N	N	Y	U	N	High#1
Lubabegron	U	U	U	U	U	Y	N	N	N	→	Low
Mabuterol	N*	N	N	N*	N	→	→	→	N	→	Low
Mapenterol	N*	N	N	N*	N	→	→	→	N	→	Low
Metoprolol	Y	U	U	Y	→	→	→	→	→	N	High
Orciprenaline (Metaproterenol)	N	N	N	N	N	→	→	→	N	→	Low
Phenylethanol amine A	U	U	U	U	U	N	N	N	N	→	Low
Pirbuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Procaterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Ractopamine	Y	Y	N	Y	→	→	→	→	→	N	High
Ritodrin	N	N	N	N	N	→	→	→	N	→	Low
Salbutamol (Albuterol)	Y	N	Y	Y	→	→	→	→	→	N	High
Salmeterol	N	N	N	N	N	→	→	→	N	→	Low
Sotalol	Y	U	U	Y	→	→	→	→	→	N	High
Terbutaline	Y	N	N	Y	→	→	→	→	→	N	High
Tulobuterol	Y	N	N	Y	→	→	→	→	→	N	High
Zilpaterol	Y	N	N	Y	→	→	→	→	→	N	High

N*: No non-compliances between 2013-2018, but non-compliances were reported < 2013

B = bovine, H= horses, G=goat, S=sheep, p=porcine

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A5.2 *Prioritisation of Beta-agonists in milk*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
Bambuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Bamethane	U	U	U	U	U	N	N	Unl - b	N	→	Low
Brombuterol	N	N	U	U	N	N	N	N	N	→	Low
Buctopamine	U	U	U	U	U	N	N	N	N	→	Low
Carbuterol	U	U	U	U	U	N	N	N	N	→	Low
Chlorbrombuterol (Bromchlorbuterol)	N	N	U	U	N	N	N	N	N	→	Low
Cimaterol	N	N	U	U	Y[b]	→	→	→	Y	N	High
Cimbuterol	N	N	U	U	N	N	N	N	N	→	Low
Clencyclohexerol	N	N	U	U	N[b]	N	N	N	N	→	Low
Clenhexerol	U	U	U	U	U	N	N	N	N	→	Low
Clen-iso-hexerol	U	U	U	U	U	N	N	N	N	→	Low
Clenisopenterol	U	U	U	U	U	N	N	N	N	→	Low
Clenpenterol	N	N	U	U	N[b]	N	N	N	N	→	Low
Clenproperol	N	N	U	U	N	N	N	N	N	→	Low
Clorprenalin	U	U	U	U	U	N	N	Unl - b	N	→	Low
Colterol	U	U	U	U	U	N	N	N	N	→	Low
Fenoterol	N	N	U	U	Y[g]	→	→	→	Y	N	High
Formoterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Hydroxymethylclenbuterol	N	N	U	U	Y[b]	→	→	→	Y	N	High
Isoprenalin	U	U	U	U	U	N	N	Y	U	N	High#1
Isoxsuprine	N	N	U	U	Y[b]	→	→	→	Y	N	High
Labetalol	U	U	U	U	U	N	N	Y	U	N	High#1
Lubabegron	U	U	U	U	U	Y	N	N	N	→	Low
Mabuterol	N	N	U	U	N[b]	N	N	Unl - b	N	→	Low
Mapenterol	N	N	U	U	N[b]	N	N	N	N	→	Low
Metoprolol	N	U	U	U	Y[b]	→	→	→	Y	N	High
Orciprenaline (Metaproterenol)	N	N	U	U	N	N	N	Unl - b	N	→	Low

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
Phenylethanol amine A	U	U	U	U	U	N	N	N	N	→	Low
Pirbuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Procaterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Ractopamine	N	N	U	U	Y[b]	→	→	→	Y	N	High
Ritodrin	N	N	U	U	N	N	N	Unl - b	N	→	Low
Salbutamol (Albuterol)	N	N	U	U	Y[b]	→	→	→	Y	N	High
Salmeterol	N	N	U	U	N	N	N	Unl - b	N	→	Low
Sotalol	U	U	U	U	Y[b]	→	→	→	Y	N	High
Terbutaline	N	N	U	U	Y[b]	→	→	→	Y	N	High
Tulobuterol	N	N	U	U	Y[b]	→	→	→	Y	N	High
Zilpaterol	N	N	U	U	Y[b]	→	→	→	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, p=porcine

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A5.3 *Prioritisation of Beta-agonists in porcine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
Bambuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Bamethane	U	U	U	U	U	N	N	Unl - b	N	→	Low
Brombuterol	N	N	N	N	N	→	→	→	N	→	Low
Buctopamine	U	U	U	U	U	N	N	N	N	→	Low
Carbuterol	U	U	U	U	U	N	N	N	N	→	Low
Chlorbrombuterol (Bromchlorbuterol)	N	N	N	N	N	→	→	→	N	→	Low
Cimaterol	N	N	N	N	Y[b]	→	→	→	Y	N	High
Cimbuterol	N	N	N	N	N	→	→	→	N	→	Low
Clencyclohexerol	N	N	N	N	N	→	→	→	N	→	Low
Clenhexerol	U	U	U	U	U	N	N	N	N	→	Low
Clen-iso-hexerol	U	U	U	U	U	N	N	N	N	→	Low
Clenisopenterol	U	U	U	U	U	N	N	N	N	→	Low
Clenpenterol	N	N	N	N	N	→	→	→	N	→	Low
Clenproperol	N	N	N	N	N	→	→	→	N	→	Low
Clorprenalin	U	U	U	U	U	N	N	Unl - b	N	→	Low
Colterol	U	U	U	U	U	N	N	N	N	→	Low
Fenoterol	N	N	N	N	Y[g]	→	→	→	Y	N	High
Formoterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Hydroxymethylclenbuterol	N	N	N	N	Y[b]	→	→	→	Y	N	High
Isoprenalin	U	U	U	U	U	N	N	Y	U	N	High#1
Isoxsuprine	N	N	N	N	Y[b]	→	→	→	Y	N	High
Labetalol	U	U	U	U	U	N	N	Y	U	N	High#1
Lubabegron	U	U	U	U	U	Y	N	N	N	→	Low
Mabuterol	N	N	N	N	N	→	→	→	N	→	Low
Mapenterol	N	N	N	N	N	→	→	→	N	→	Low
Metoprolol	N	U	U	U	Y[b]	→	→	→	Y	N	High
Orciprenaline (Metaproterenol)	N	N	N	N	N	→	→	→	N	→	Low

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
Phenylethanol amine A	U	U	U	U	U	N	N	N	N	→	Low
Pirbuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Procaterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Ractopamine	Y	N	N	Y	→	→	→	→	→	N	High
Ritodrin	N	N	N	N	N	→	→	→	N	→	Low
Salbutamol (Albuterol)	Y	N	Y	Y	→	→	→	→	→	N	High
Salmeterol	N	N	N	N	N	→	→	→	N	→	Low
Sotalol	U	U	U	U	Y[b]	→	→	→	Y	N	High
Terbutaline	N	N	N	N	Y[b]	→	→	→	Y	N	High
Tulobuterol	N	N	N	N	Y[b]	→	→	→	Y	N	High
Zilpaterol	N	N	N	N	Y[b]	→	→	→	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, p=porcine

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A5.4 *Prioritisation of Beta-agonists in horse*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
Bambuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Bamethane	U	U	U	U	U	N	N	Unl - b	N	→	Low
Brombuterol	N	N	U	U	N	N	N	N	N	→	Low
Buctopamine	U	U	U	U	U	N	N	N	N	→	Low
Carbuterol	U	U	U	U	U	N	N	N	N	→	Low
Chlorbrombuterol (Bromchlorbuterol)	N	N	U	U	N	N	N	N	N	→	Low
Cimaterol	N	N	U	U	Y[b]	→	→	→	Y	N	High
Cimbuterol	N	N	U	U	N	N	N	N	N	→	Low
Clencyclohexerol	N	N	U	U	N	N	N	N	N	→	Low
Clenhexerol	U	U	U	U	U	N	N	N	N	→	Low
Clen-iso-hexerol	U	U	U	U	U	N	N	N	N	→	Low
Clenisopenterol	U	U	U	U	U	N	N	N	N	→	Low
Clenpenterol	N	N	U	U	N	N	N	N	N	→	Low
Clenproperol	N	N	U	U	N	N	N	N	N	→	Low
Clorprenalin	U	U	U	U	U	N	N	Unl - b	N	→	Low
Colterol	U	U	U	U	U	N	N	N	N	→	Low
Fenoterol	N	N	U	U	Y[g]	→	→	→	Y	N	High
Formoterol	U	U	U	U	U	N	N	Y	U	N	High#1
Hydroxymethylclenbuterol	N	N	U	U	Y[b]	→	→	→	Y	N	High
Isoprenalin	U	U	U	U	U	N	N	Y	U	N	High#1
Isoxsuprine	N	Y	U	Y	→	→	→	→	→	N	High
Labetalol	U	U	U	U	U	N	N	Y	U	N	High#1
Lubabegron	U	U	U	U	U	Y	N	N	N	→	Low
Mabuterol	N	N	U	U	N	N	N	Unl - b	N	→	Low
Mapenterol	N	N	U	U	N	N	N	N	N	→	Low
Metoprolol	N	U	U	U	Y[b]	→	→	→	Y	N	High
Orciprenaline (Metaproterenol)	N	N	U	U	N	N	N	Unl - b	N	→	Low

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
Phenylethanol amine A	U	U	U	U	U	N	N	N	N	→	Low
Pirbuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Procaterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Ractopamine	N	Y	U	Y	→	→	→	→	→	N	High
Ritodrin	N	N	U	U	N	N	N	Unl - b	N	→	Low
Salbutamol (Albuterol)	N	N	U	U	Y[b,p]	→	→	→	Y	N	High
Salmeterol	N	N	U	U	N	N	N	Y	U	N	High#1
Sotalol	U	U	U	U	Y[b]	→	→	→	Y	N	High
Terbutaline	N	N	U	U	Y[b]	→	→	→	Y	N	High
Tulobuterol	N	N	U	U	Y[b]	→	→	→	Y	N	High
Zilpaterol	N	Y	U	Y	→	→	→	→	→	N	High

B = bovine, H= horses, G=goat, S=sheep, p=porcine

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A5.5 *Prioritisation of Beta-agonists in goat*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
Bambuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Bamethane	U	U	U	U	U	N	N	Unl - b	N	→	Low
Brombuterol	N	N	U	U	N	N	N	N	N	→	Low
Buctopamine	U	U	U	U	U	N	N	N	N	→	Low
Carbuterol	U	U	U	U	U	N	N	N	N	→	Low
Chlorbrombuterol (Bromchlorbuterol)	N	N	U	U	N	N	N	N	N	→	Low
Cimaterol	N	N	U	U	Y[b]	→	→	→	Y	N	High
Cimbuterol	N	N	U	U	N	N	N	N	N	→	Low
Clencyclohexerol	N	N	U	U	N	N	N	N	N	→	Low
Clenhexerol	U	U	U	U	U	N	N	N	N	→	Low
Clen-iso-hexerol	U	U	U	U	U	N	N	N	N	→	Low
Clenisopenterol	U	U	U	U	U	N	N	N	N	→	Low
Clenpenterol	N	N	U	U	N	N	N	N	N	→	Low
Clenproperol	N	N	U	U	N	N	N	N	N	→	Low
Clorprenalin	U	U	U	U	U	N	N	Unl - b	N	→	Low
Colterol	U	U	U	U	U	N	N	N	N	→	Low
Fenoterol	N	N	Y	Y	→	→	→	→	→	N	High
Formoterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Hydroxymethylclenbuterol	N	N	U	U	Y[b]	→	→	→	Y	N	High
Isoprenalin	U	U	U	U	U	N	N	Y	U	N	High#1
Isoxsuprine	N	N	U	U	Y[b]	→	→	→	Y	N	High
Labetalol	U	U	U	U	U	N	N	Y	U	N	High#1
Lubabegron	U	U	U	U	U	Y	N	N	N	→	Low
Mabuterol	N	N	U	U	N	N	N	Unl - b	N	→	Low
Mapenterol	N	N	U	U	N	N	N	N	N	→	Low
Metoprolol	N	U	U	U	Y[b]	→	→	→	Y	N	High
Orciprenaline (Metaproterenol)	N	N	U	U	N	N	N	Unl - b	N	→	Low

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
Phenylethanol amine A	U	U	U	U	U	N	N	N	N	→	Low
Pirbuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Procaterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Ractopamine	N	N	U	U	Y[b,p]	→	→	→	Y	N	High
Ritodrin	N	N	U	U	N	N	N	Unl - b	N	→	Low
Salbutamol (Albuterol)	N	N	U	U	Y[b,p]	→	→	→	Y	N	High
Salmeterol	N	N	U	U	N	N	N	Unl - b	N	→	Low
Sotalol	U	U	U	U	Y[b]	→	→	→	Y	N	High
Terbutaline	N	N	U	U	Y[b]	→	→	→	Y	N	High
Tulobuterol	N	N	U	U	Y[b]	→	→	→	Y	N	High
Zilpaterol	N	N	U	U	Y[b]	→	→	→	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, p=porcine

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A5.6 *Prioritisation of Beta-agonists in sheep*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
Bambuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Bamethane	U	U	U	U	U	N	N	Unl - b	N	→	Low
Brombuterol	N	N	N	N	N	→	→	→	N	→	Low
Buctopamine	U	U	U	U	U	N	N	N	N	→	Low
Carbuterol	U	U	U	U	U	N	N	N	N	→	Low
Chlorbrombuterol (Bromchlorbuterol)	N	N	N	N	N	→	→	→	N	→	Low
Cimaterol	N	N	N	N	Y[b]	→	→	→	Y	N	High
Cimbuterol	N	N	N	N	N	→	→	→	N	→	Low
Clencyclohexerol	N	N	N	N	N	→	→	→	N	→	Low
Clenhexerol	U	U	U	U	U	N	N	N	N	→	Low
Clen-iso-hexerol	U	U	U	U	U	N	N	N	N	→	Low
Clenisopenterol	U	U	U	U	U	N	N	N	N	→	Low
Clenpenterol	N	N	N	N	N	→	→	→	N	→	Low
Clenproperol	N	N	N	N	N	→	→	→	N	→	Low
Clorprenalin	U	U	U	U	U	N	N	Unl - b	N	→	Low
Colterol	U	U	U	U	U	N	N	N	N	→	Low
Fenoterol	N	N	N	N	Y[g]	→	→	→	Y	N	High
Formoterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Hydroxymethylclenbuterol	N	N	N	N	Y[b]	→	→	→	Y	N	High
Isoprenalin	U	U	U	U	U	N	N	Y	U	N	High#1
Isoxsuprine	N	N	N	N	Y[b]	→	→	→	Y	N	High
Labetalol	U	U	U	U	U	N	N	Y	U	N	High#1
Lubabegron	U	U	U	U	U	Y	N	N	N	→	Low
Mabuterol	N	N	N	N	N	→	→	→	N	→	Low
Mapenterol	N	N	N	N	N	→	→	→	N	→	Low
Metoprolol	N	U	U	U	Y[b]	→	→	→	Y	N	High
Orciprenaline (Metaproterenol)	N	N	N	N	N	→	→	→	N	→	Low

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
Phenylethanol amine A	U	U	U	U	U	N	N	N	N	→	Low
Pirbuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Procaterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Ractopamine	N	N	N	N	Y[b,p]	→	→	→	Y	N	High
Ritodrin	N	N	N	N	N	→	→	→	N	→	Low
Salbutamol (Albuterol)	N	N	N	N	Y[b,p]	→	→	→	Y	N	High
Salmeterol	N	N	N	N	N	→	→	→	N	→	Low
Sotalol	U	U	U	U	Y[b]	→	→	→	Y	N	High
Terbutaline	N	N	N	N	Y[b]	→	→	→	Y	N	High
Tulobuterol	N	N	N	N	Y[b]	→	→	→	Y	N	High
Zilpaterol	N	N	N	N	Y[b]	→	→	→	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, p=porcine, poul=poultry

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A5.7 *Prioritisation of Beta-agonists in poultry*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
Bambuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Bamethane	U	U	U	U	U	N	N	Unl - b	N	→	Low
Brombuterol	N	N	N	N	U	N	N	N	N	→	Low
Buctopamine	U	U	U	U	U	N	N	N	N	→	Low
Carbuterol	U	U	U	U	U	N	N	N	N	→	Low
Chlorbrombuterol (Bromchlorbuterol)	N	N	N	N	U	N	N	N	N	→	Low
Cimaterol	N	N	N	N	U	N	N	Unl - b	N	→	Low
Cimbuterol	N	N	N	N	U	N	N	N	N	→	Low
Clencyclohexerol	N	N	N	N	U	N	N	N	N	→	Low
Clenhexerol	U	U	U	U	U	N	N	N	N	→	Low
Clen-iso-hexerol	U	U	U	U	U	N	N	N	N	→	Low
Clenisopenterol	U	U	U	U	U	N	N	N	N	→	Low
Clenpenterol	N	N	N	N	U	N	N	N	N	→	Low
Clenproperol	N	N	N	N	U	N	N	N	N	→	Low
Clorprenalin	U	U	U	U	U	N	N	Unl - b	N	→	Low
Colterol	U	U	U	U	U	N	N	N	N	→	Low
Fenoterol	N	N	N	N	U	N	N	Unl - b	N	→	Low
Formoterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Hydroxymethylclenbuterol	N	N	N	N	U	N	N	N	N	→	Low
Isoprenalin	U	U	U	U	U	N	N	Unl - a (injection)	N	→	Low
Isoxsuprine	N*	N	N	N*	U	N	Y	Y	Y	N	High
Labetalol	U	U	U	U	U	N	N	Unl - a (injection)	N	→	Low
Lubabegron	U	U	U	U	U	Y	N	N	N	→	Low
Mabuterol	N	N	N	N	U	N	N	Unl - b	N	→	Low
Mapenterol	N	N	N	N	U	N	N	N	N	→	Low
Metoprolol	N	U	U	U	U	N	Y	Unl - a (injection)	U	N	High#2
Orciprenaline (Metaproterenol)	N	N	N	N	U	N	N	Unl - b	N	→	Low

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
Phenylethanol amine A	U	U	U	U	U	N	N	N	N	→	Low
Pirbuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Procaterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Ractopamine	N	N	N	N	U	Y	N	Y	Y	N	High
Ritodrin	N	N	N	N	U	N	N	Unl - b	N	→	Low
Salbutamol (Albuterol)	N	N	N	N	U	NFA-H	N	Y	U	N	High#1
Salmeterol	N	N	N	N	U	N	N	Unl - b	N	→	Low
Sotalol	U	U	U	U	U	N	N	Y	U	N	High#1
Terbutaline	N*	N	N	N*	U	N	N	Y	U	N	High#1
Tulobuterol	N	N	N	N	U	N	N	Unl - b	N	→	Low
Zilpaterol	N	N	N	N	U	Ycattle	N	Y	Y	N	High

N*: No non-compliances between 2013-2018, but non-compliances were reported < 2013

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog, NFA-H: non-food producing animals - horse

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A5.8 *Prioritisation of Beta-agonists in eggs*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
Bambuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Bamethane	U	U	U	U	U	N	N	Unl - b	N	→	Low
Brombuterol	N	N	U	U	N	N	N	N	N	→	Low
Buctopamine	U	U	U	U	U	N	N	N	N	→	Low
Carbuterol	U	U	U	U	U	N	N	N	N	→	Low
Chlorbrombuterol (Bromchlorbuterol)	N	N	U	U	N	N	N	N	N	→	Low
Cimaterol	N	N	U	U	N	N	N	Unl - b	N	→	Low
Cimbuterol	N	N	U	U	N	N	N	N	N	→	Low
Clencyclohexerol	N	N	U	U	N	N	N	N	N	→	Low
Clenhexerol	U	U	U	U	U	N	N	N	N	→	Low
Clen-iso-hexerol	U	U	U	U	U	N	N	N	N	→	Low
Clenisopenterol	U	U	U	U	U	N	N	N	N	→	Low
Clenpenterol	N	N	U	U	N	N	N	N	N	→	Low
Clenproperol	N	N	U	U	N	N	N	N	N	→	Low
Clorprenalin	U	U	U	U	U	N	N	Unl - b	N	→	Low
Colterol	U	U	U	U	U	N	N	N	N	→	Low
Fenoterol	N	N	U	U	N	N	N	Unl - b	N	→	Low
Formoterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Hydroxymethylclenbuterol	N	N	U	U	N	N	N	N	N	→	Low
Isoprenalin	U	U	U	U	U	N	N	Unl - a (injection)	N	→	Low
Isoxsuprine	N	N	U	U	N	N	Y	Y	Y	N	High
Labetalol	U	U	U	U	U	N	N	Unl - a (injection)	N	→	Low
Lubabegron	U	U	U	U	U	Y	N	N	N	→	Low
Mabuterol	N	N	U	U	N	N	N	Unl - b	N	→	Low
Mapenterol	N	N	U	U	N	N	N	N	N	→	Low
Metoprolol	N	U	U	U	U	N	Y	Unl - a (injection)	U	N	High#2
Orciprenaline (Metaproterenol)	N	N	U	U	N	N	N	Unl - b	N	→	Low

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
Phenylethanol amine A	U	U	U	U	U	N	N	N	N	→	Low
Pirbuterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Procaterol	U	U	U	U	U	N	N	Unl - b	N	→	Low
Ractopamine	N	N	U	U	N	Y	N	Y	Y	N	High
Ritodrin	N	N	U	U	N	N	N	Unl - b	N	→	Low
Salbutamol (Albuterol)	N	N	U	U	N	NFA-H	N	Y	U	N	High#1
Salmeterol	N	N	U	U	N	N	N	Unl - b	N	→	Low
Sotalol	U	U	U	U	U	N	N	Y	U	N	High#1
Terbutaline	N	N	U	U	N	N	N	Y	U	N	High#1
Tulobuterol	N	N	U	U	N	N	N	Unl - b	N	→	Low
Zilpaterol	N	N	U	U	N	Y cattle	N	Y	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, porc=porcine, poul=poultry, c = cat, d = dog, NFA-H: non-food producing animals - horse

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Annex 6 Prioritisation of prohibited substances (group A2)

Table A6.1 *Prioritisation of prohibited substances in bovine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
AHD (nitrofurantoin)	N	N	N	N	$Y^{m,p}$	→	→	→	Y	N	High
AMOZ (furaltadone)	Y	Y	Y	Y	→	→	→	→	→	N	High
AOZ (furazolidone)	N	Y	N	Y	→	→	→	→	→	N	High
Aristolochia spp. and preparations thereof (aristolochic acids)	N	N	U	U	U	N	N	Y	U	N	High#1
Chloramphenicol	Y	N	Y	Y	→	→	→	→	→	N	High
Chlorpromazine	N	N	N	N	N	→	→	→	N	→	Low
Colchicine	N	N	U	U	U	N	N	Y	U	N	High#1
Dapsone	N	N	N	N	N	→	→	→	N	→	Low
Dimetridazole	N	N	U	U	Y^{p}	→	→	→	Y	N	High
DNSH (Nifursol)	N	N	N	N	N	→	→	→	N	→	Low
Metronidazole/hydroxy-metronidazole	N	N	U	U	Y^{p}	→	→	→	Y	N	High
Ronidazole	N	N	U	U	N	N	Y	Y	Y	N	High
SEM (nitrofurazone)	Y	Y	Y	Y	→	→	→	→	→	N	High

B = bovine, H= horses, G=goat, S=sheep, p=porcine, m = milk

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

Table A6.2 *Prioritisation of prohibited substances in milk*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
AHD (nitrofurantoin)	Y	N	U	Y	→	→	→	→	→	N	High
AMOZ (furaltadone)	Y	N	U	Y	→	→	→	→	→	N	High
AOZ (furazolidone)	Y	N	U	Y	→	→	→	→	→	N	High
Aristolochia spp. and preparations thereof (aristolochic acids)	N	N	U	U	U	N	N	Y	U	N	High#1
Chloramphenicol	Y	Y	N	Y	→	→	→	→	→	N	High
Chlorpromazine	N	N	U	U	N	N	N	Y	U	N	High#1
Colchicine	N	N	U	U	U	N	N	Y	U	N	High#1
Dapsone	N	N	N	N	N	→	→	→	N	→	Low
Dimetridazole	N	N	N	N	U	N	Y	Y	Y	N	High
DNSAH (Nifursol)	N	N	U	U	N	N	N	Y	U	N	High#1
Metronidazole/hydroxy-metronidazole	N	N	N	N	U	N	Y	Y	Y	N	High
Ronidazole	N	N	N	N	U	N	Y	Y	Y	N	High
SEM (nitrofurazone)	Y	N	U	Y	→	→	→	→	→	N	High

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

Table A6.3 *Prioritisation of prohibited substances in porcine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
AHD (nitrofurantoin)	N	N	Y	Y	→	→	→	→	→	N	High
AMOZ (furaltadone)	N	Y	Y	Y	→	→	→	→	→	N	High
AOZ (furazolidone)	N	N	Y	Y	→	→	→	→	→	N	High
Aristolochia spp. and preparations thereof (aristolochic acids)	N	N	U	U	U	N	N	Y	U	N	High#1
Chloramphenicol	Y	N	Y	Y	→	→	→	→	→	N	High
Chlorpromazine	N	N	N	N	N	→	→	→	N	→	Low
Colchicine	N	N	U	U	U	N	N	Y	U		High#1
Dapsone	N	N	N	N	N	→	→	→	N	→	Low
Dimetridazole	Y	N	N	Y	→	→	→	→	→	N	High
DNSAH (Nifursol)	N	N	N	N	N	→	→	→	N	→	Low
Metronidazole/hydroxy-metronidazole	Y	Y	N	Y	→	→	→	→	→	N	High
Ronidazole	N	N	N	N	N	→	→	→	N	→	Low
SEM (nitrofurazone)	Y	Y	Y	Y	→	→	→	→	→	N	High

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

Table A6.4 *Prioritisation of prohibited substances in horse*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
AHD (nitrofurantoin)	N	N	U	U	Y^{p}	→	→	→	Y	N	High
AMOZ (furaltadone)	N	N	U	U	$Y^{b,p}$	→	→	→	Y	N	High
AOZ (furazolidone)	N	N	U	U	$Y^{b,p}$	→	→	→	Y	N	High
Aristolochia spp. and preparations thereof (aristolochic acids)	N	N	U	U	U	N	N	Y	U	N	High#1
Chloramphenicol	N	N	U	U	$Y^{b,p,s}$	→	→	→	Y	N	High
Chlorpromazine	N	N	U	U	N	N	N	Y	U	N	High#1
Colchicine	N	N	U	U	U	N	N	Y	U	N	High#1
Dapsone	N	N	U	U	N	N	N	Y	U	N	High#1
Dimetridazole	N	N	N	N	Y^{p}	→	→	→	Y	N	High
DNSAH (Nifursol)	N	N	U	U	U	N	N	Y	U	N	High#1
Metronidazole/hydroxy-metronidazole	N	N	N	N	Y^{p}	→	→	→	Y	N	High
Ronidazole	N	N	U	U	N	→	→	→	N	→	Low
SEM (nitrofurazone)	N	N	U	U	$Y^{b,p,g,s}$	→	→	→	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, p=porcine

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

Table A6.5 *Prioritisation of prohibited substances in goat*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
AHD (nitrofurantoin)	N	N	U	U	Y^{p}	→	→	→	Y	N	High
AMOZ (furaltadone)	N	N	U	U	$Y^{b,p}$	→	→	→	Y	N	High
AOZ (furazolidone)	N	N	U	U	$Y^{b,p}$	→	→	→	Y	N	High
Aristolochia spp. and preparations thereof (aristolochic acids)	N	N	U	U	U	N	N	Y	U	N	High#1
Chloramphenicol	N	N	U	U	$Y^{b,p,s}$	→	→	→	Y	N	High
Chlorpromazine	N	N	U	U	N	N	N	Y	U	N	High#1
Colchicine	N	N	U	U	U	N	N	Y	U	N	High#1
Dapsone	N	N	U	U	N	N	N	Y	U	N	High#1
Dimetridazole	N	N	U	U	Y^{p}	→	→	→	Y	N	High
DNSAH (Nifursol)	N	N	U	U	U	N	N	Y	U	N	High#1
Metronidazole/hydroxy-metronidazole	N	N	U	U	Y^{p}	→	→	→	Y	N	High
Ronidazole	N	N	U	U	N	N	Y	Y	Y	N	High
SEM (nitrofurazone)	Y	N	Y	Y	→	→	→	→	→	N	High

B = bovine, H= horses, G=goat, S=sheep, p=porcine

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

Table A6.6 *Prioritisation of prohibited substances in sheep*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
AHD (nitrofurantoin)	N	N	U	U	Y[p]	→	→	→	Y	N	High
AMOZ (furaltadone)	N	N	U	U	Y[b,p]	→	→	→	Y	N	High
AOZ (furazolidone)	N	N	U	U	Y[b,p]	→	→	→	Y	N	High
Aristolochia spp. and preparations thereof (aristolochic acids)	N	N	U	U	U	N	N	Y	U	N	High#1
Chloramphenicol	Y	N	N	Y	→	→	→	→	→	N	High
Chlorpromazine	N	N	U	U	N	N	N	Y	U	N	High#1
Colchicine	N	N	U	U	U	N	N	Y	U	N	High#1
Dapsone	N	N	U	U	N	N	N	Y	U	N	High#1
Dimetridazole	N	N	U	U	Y[p]	→	→	→	Y	N	High
DNSAH (Nifursol)	N	N	U	U	U	N	N	Y	U	N	High#1
Metronidazole/hydroxy-metronidazole	N	N	U	U	Y[p]	→	→	→	Y	N	High
Ronidazole	N	N	U	U	N	N	Y	Y	Y	N	High
SEM (nitrofurazone)	Y	Y	Y	Y	→	→	→	→	→	N	High

B = bovine, H= horses, G=goat, S=sheep, p=porcine,

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

Table A6.7 *Prioritisation of prohibited substances in poultry*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
AHD (nitrofurantoin)	N	N	Y	Y	→	→	→	→	→	N	High
AMOZ (furaltadone)	Y	N	Y	Y	→	→	→	→	→	N	High
AOZ (furazolidone)	Y	N	Y	Y	→	→	→	→	→	N	High
Aristolochia spp. and preparations thereof (aristolochic acids)	N	N	U	U	U	N	N	Y	U	N	High#1
Chloramphenicol	Y	N	Y	Y	→	→	→	→	→	N	High
Chlorpromazine	N	N	U	U	U	N	N	Y	U	N	High#1
Colchicine	N	N	U	U	U	N	N	Y	U	N	High#1
Dapsone	N	N	N	N	U	N	N	Y	U	N	High#1
Dimetridazole	Y	N	N	Y	→	→	→	→	→	N	High
DNSAH (Nifursol)	N	N	N	N	N	→	→	→	N	→	Low
Metronidazole/hydroxy-metronidazole	Y	Y	N	Y	→	→	→	→	→	N	High
Ronidazole	N	N	N	N	N	→	→	→	N	→	Low
SEM (nitrofurazone)	Y	N	Y	Y	→	→	→	→	→	N	High

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

Table A6.8 *Prioritisation of prohibited substances in eggs*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
AHD (nitrofurantoin)	N	N	N	N	Y[poultry]	→	→	→	Y	N	High
AMOZ (furaltadone)	N	N	N	N	Y[poultry]	→	→	→	Y	N	High
AOZ (furazolidone)	N	N	N	N	Y[poultry]	→	→	→	Y	N	High
Aristolochia spp. and preparations thereof (aristolochic acids)	N	N	U	U	U	N	N	Y	U	N	High#1
Chloramphenicol	Y	Y	N	Y	→	→	→	→	→	N	High
Chlorpromazine	N	N	U	U	U	N	N	Y	U	N	High#1
Colchicine	N	N	U	U	U	N	N	Y	U	N	High#1
Dapsone	N	N	U	U	N	N	N	Y	U	N	High#1
Dimetridazole	N	N	N	N	Y[poultry]	→	→	→	Y	N	High
DNSAH (Nifursol)	N	N	N	N	N	→	→	→	N	→	Low
Metronidazole/hydroxy-metronidazole	N	N	N	N	Y[poultry]	→	→	→	Y	N	High
Ronidazole	N	N	N	N	N	→	→	→	N	→	Low
SEM (nitrofurazone)	N	N	N	N	Y[poultry]	→	→	→	Y	N	High

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

Annex 7 Prioritisation of pesticides and biocides (group A3b)

Table A7.1 *Prioritisation of pesticides and biocides in bovine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2017**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
Dichlorvos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Dinotefuran	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Famphur	N	N	U	U	U	Y	N	N	N	-->	Low
Fenthion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fenvalerate	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fluvalinate	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Malathion (maldison)	N	N	N	N	N	-->	-->	-->	N	-->	Low
Nicotine	N	N	N	N	N	N	N	Unl - e	N	-->	Low
Propetamphos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Trichlorfon (metrifonate)	N	N	N	N	N	-->	-->	-->	N	-->	Low

(U): not found in KAP, but should be included in the analytical scope

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A7.2 *Prioritisation of pesticides and biocides in milk*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2017**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved for use in food producing species outside EU**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
Dichlorvos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Dinotefuran	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Famphur	N	N	U	U	U	Y	N	N	N	-->	Low
Fenthion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fenvalerate	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fluvalinate	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Malathion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Nicotine	N	N	N	N	N	N	N	Unl - e	N	-->	Low
Propetamphos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Trichlorfon (metrifonate)	N	N	N	N	N	-->	-->	-->	N	-->	Low

(U): not found in KAP, but should be included in the analytical scope

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A7.3 *Prioritisation of pesticides and biocides in porcine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2017**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
Dichlorvos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Dinotefuran	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Famphur	N	N	U	U	U	Y	N	N	N	-->	Low
Fenthion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fenvalerate	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fluvalinate	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Malathion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Nicotine	N	N	N	N	N	N	N	Unl - e	N	-->	Low
Propetamphos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Trichlorfon (metrifonate)	N	N	N	N	N	-->	-->	-->	N	-->	Low

(U): not found in KAP, but should be included in the analytical scope

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A7.4 *Prioritisation of pesticides and biocides in horse*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2017**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved for use in food producing species outside EU**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
Dichlorvos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Dinotefuran	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Famphur	N	N	U	U	U	Y	N	N	N	-->	Low
Fenthion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fenvalerate	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fluvalinate	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Malathion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Nicotine	N	N	N	N	N	N	N	Unl - e	N	-->	Low
Propetamphos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Trichlorfon (metrifonate)	N	N	N	N	N	-->	-->	-->	N	-->	Low

(U): not found in KAP, but should be included in the analytical scope

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A7.5 *Prioritisation of pesticides and biocides in goat*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2017**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
Dichlorvos	N	N	U	U	N	N (Y)	N	Y	Y	N	High
Dinotefuran	N	N	U	U	N	N	Y	Y	Y	N	High
Famphur	N	N	U	U	U	Y	N	N	N	-->	Low
Fenthion	N	N	U	U	N	N(Y)	N	Y	Y	N	High
Fenvalerate	N	N	U	U	N	N(Y)	N	Y	Y	Y	Medium
Fluvalinate	N	N	U	U	N	N(Y)	N	Y	Y	Y	Medium
Malathion	N	N	U	U	N	N(Y)	N	Y	Y	Y	Medium
Nicotine	N	N	U	U	N	N	N	Unl - e	N	-->	Low
Propetamphos	N	N	U	U	N	N(Y)	N	Y	Y	N	High
Trichlorfon (metrifonate)	N	N	U	U	N	N(Y)	N	Y	Y	N	High

[1]This column species FDA approvals and between brackets Chinese approval

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A7.6 *Prioritisation of pesticides and biocides in sheep*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2017**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
Dichlorvos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Dinotefuran	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Famphur	N	N	U	U	U	Y	N	N	N	-->	Low
Fenthion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fenvalerate	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fluvalinate	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Malathion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Nicotine	N	N	N	N	N	N	N	Unl - e	N	-->	Low
Propetamphos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Trichlorfon (metrifonate)	N	N	N	N	N	-->	-->	-->	N	-->	Low

(U): not found in KAP, but should be included in the analytical scope

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

Table A7.7 *Prioritisation of pesticides and biocides in poultry*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2017**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved for use in food producing species outside EU**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
Dichlorvos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Dinotefuran	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Famphur	N	N	U	U	U	Y	N	N	N	-->	Low
Fenthion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fenvalerate	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fluvalinate	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Malathion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Nicotine	Y	N	N	Y	-->	-->	-->	-->	-->	N	High
Propetamphos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Trichlorfon (metrifonate)	N	N	N	N	N	-->	-->	-->	N	-->	Low

(U): not found in KAP, but should be included in the analytical scope

Table A7.8 *Prioritisation of pesticides and biocides in eggs*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2017**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved for use in food producing species outside EU**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
Dichlorvos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Dinotefuran	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Famphur	N	N	U	U	U	Y	N	N	N	-->	low
Fenthion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fenvalerate	N	N	N	N	N	-->	-->	-->	N	-->	Low
Fluvalinate	N	N	(U)	N	N	-->	-->	-->	N	-->	Low
Malathion	N	N	N	N	N	-->	-->	-->	N	-->	Low
Nicotine	Y	N	N	Y	→	→	→	→	→	N	High
Propetamphos	N	N	N	N	N	-->	-->	-->	N	-->	Low
Trichlorfon (metrifonate)	N	N	N	N	N	-->	-->	-->	N	-->	Low

(U): not found in KAP, but should be included in the analytical scope

Annex 8 Prioritisation of antimicrobial substances (group A3c)

Table A8.1 *Prioritisation of antimicrobial substances in bovine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
Amikacin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Azithromycin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Carbadox	N	N	U	U	N	Y	N	Unl - c	U	N	High#2
Cefadroxil	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Cefixime	N	N	U	U	U	N	N	Y	U	N	High#1
Cefotaxime	N	N	U	U	U	N	N	Y	U	N	High#1
Cefovecin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Ceftriaxone	N	N	U	U	U	N	N	Y	U	N	High#1
Clindamycin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Cyadox	N	N	U	U	U	N	N	N	N	-->	Low
Destomycin	N	N	U	U	U	N (Y)	N	Unl - c	U	N	High#2
Efrotomycin	N	N	U	U	U	Y	N	N	N	-->	Low
Enramycin / Enduramycin	N	N	U	U	U	N (Y)	N	Unl - c	U	N	High#2
Fosfomycin	N	N	U	U	U	N	N	Y	U	N	High#1
Gatifloxacin	N	N	U	U	U	N	N	Unl - d	N	-->	Low
Griseofulvin	N	N	U	U	U	N	*Y*	Unl - d	U	N	High#2
Hainanmycin	N	N	U	U	U	N(Y)	N	Unl - c	U	N	High#2
Hygromycin b	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Leucomycin / Kitasamycin	N	N	U	U	U	N (Y)	N	Unl - c	U	N	High#2

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
Levofloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Lomefloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Mequindox	N	N	U	U	U	N	N	Y	U	N	High#1
Moxifloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Norfloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Nystatin	N	N	U	U	U	Y	Y	Y	Y	N	High
Ofloxacin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Olaquindox	N	N	U	U	N	N(Y)	N	Y	Y	N	High
Orbifloxacin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Pazufloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Piperacillin	N	N	U	U	U	N	N	Y	U	N	High#1
Pradofloxacin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Quinocetone	N	N	U	U	U	N	N	Unl - c	N	-->	Low
Sedecamycin	N	N	U	U	U	N(Y)	N	Unl - c	U	N	High#2
Ticarcillin	N	N	U	U	U	N	*Y*	Unl - d	U	N	High#2

[1]This column specifies FDA approval and between brackets Chinese approval

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A8.2 *Prioritisation of antimicrobial substances in milk*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
Amikacin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Azithromycin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Carbadox	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Cefadroxil	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Cefixime	N	N	U	U	U	N	N	Y	U	N	High#1
Cefotaxime	N	N	U	U	U	N	N	Y	U	N	High#1
Cefovecin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Ceftriaxone	N	N	U	U	U	N	N	Y	U	N	High#1
Clindamycin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Cyadox	N	N	U	U	U	N	N	N	N	-->	Low
Destomycin	N	N	U	U	U	N(Y)	N	Unl - c	U	N	High#2
Efrotomycin	N	N	U	U	U	Y	N	N	N	-->	Low
Enramycin / Enduramycin	N	N	U	U	U	N (Y)	N	Unl - c	U	N	High#2
Fosfomycin	N	N	U	U	U	N	N	Y	U	N	High#1
Gatifloxacin	N	N	U	U	U	N	N	Unl - d	N	-->	Low
Griseofulvin	N	N	U	U	U	N	*Y*	Unl - d	U	N	High#2
Hainanmycin	N	N	U	U	U	N(Y)	N	Unl - c	U	N	High#2
Hygromycin b	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Leucomycin / Kitasamycin	N	N	U	U	U	N (Y)	N	Unl - c	U	N	High#2
Levofloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Lomefloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Mequindox	N	N	U	U	U	N	N	Y	U	N	High#1
Moxifloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Norfloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Nystatin	N	N	U	U	U	Y	Y	Y	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
Ofloxacin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Olaquindox	N	N	U	U	U	N(Y)	N	Unl - c	U	N	High#2
Orbifloxacin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Pazufloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Piperacillin	N	N	U	U	U	N	N	Y	U	N	High#1
Pradofloxacin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Quinocetone	N	N	U	U	U	N	N	Unl - c	N	-->	Low
Sedecamycin	N	N	U	U	U	N(Y)	N	Unl - c	U	N	High#2
Ticarcillin	N	N	U	U	U	N	*Y*	Unl - d	U	N	High#2

[1]This column specifies FDA approval and between brackets Chinese approval

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A8.3 *Prioritisation of antimicrobial substances in porcine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
Amikacin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Azithromycin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Carbadox	N	N	N	N	U	Y	N	Y	Y	N	High
Cefadroxil	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Cefixime	N	N	U	U	U	N	N	Y	U	N	High#1
Cefotaxime	N	N	U	U	U	N	N	Y	U	N	High#1
Cefovecin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Ceftriaxone	N	N	U	U	U	N	N	Y	U	N	High#1
Clindamycin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Cyadox	N	N	U	U	U	N	N	N	N	-->	Low
Destomycin	N	N	U	U	U	N(Y)	N	Y	Y	N	High
Efrotomycin	N	N	U	U	U	Y	N	N	N	-->	Low
Enramycin / Enduramycin	N	N	U	U	U	N (Y)	N	Y	Y	N	High
Fosfomycin	N	N	U	U	U	N	N	Y	U	N	High#1
Gatifloxacin	N	N	U	U	U	N	N	Unl - d	N	-->	Low
Griseofulvin	N	N	U	U	U	N	*Y*	Unl - d	U	N	High#2
Hainanmycin	N	N	U	U	U	N(Y)	N	Y	Y	N	High
Hygromycin b	N	N	U	U	U	Y	N	Y	Y	N	High
Leucomycin / Kitasamycin	N	N	U	U	U	N (Y)	N	Y	Y	N	High
Levofloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Lomefloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Mequindox	N	N	U	U	U	N	N	Y	U	N	High#1
Moxifloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Norfloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Nystatin	N	N	U	U	U	Y	Y	Y	Y	N	High
Ofloxacin	N	N	U	U	U	N	*Y*	Y	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
Olaquindox	N	N	N	N	U	N(Y)	N	Y	Y	N	High
Orbifloxacin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Pazufloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Piperacillin	N	N	U	U	U	N	N	Y	U	N	High#1
Pradofloxacin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Quinocetone	N	N	U	U	U	N	N	Y	U	N	High#1
Sedecamycin	N	N	U	U	U	N(Y)	N	Y[2]	Y	N	High
Ticarcillin	N	N	U	U	U	N	*Y*	Unl - d	U	N	High#2

[1]This column specifies FDA approval and between brackets Chinese approval

[2]No products found in English, but searching with the Chinese translation does show products on alibaba.com

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A8.4 *Prioritisation of antimicrobial substances in horse*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?						Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Controlled on forbidden substances list**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
Amikacin	N	N	U	U	U	N	*Y*	N	Y	Y	N	High
Azithromycin	N	N	U	U	U	N	*Y*	N	Y	Y	N	High
Carbadox	N	N	U	U	N	Y	N	N	Unl - c	U	N	High#2
Cefadroxil	N	N	U	U	U	N	Y	N	Unl - d	U	N	High#2
Cefixime	N	N	U	U	U	N	N	N	Y	U	N	High#1
Cefotaxime	N	N	U	U	U	N	N	N	Y	U	N	High#1
Cefovecin	N	N	U	U	U	N	Y	N	Unl - d	U	N	High#2
Ceftriaxone	N	N	U	U	U	N	N	N	Y	U	N	High#1
Clindamycin	N	N	U	U	U	N	Y	N	Unl - d	U	N	High#2
Cyadox	N	N	U	U	U	N	N	N	N	N	-->	Low
Destomycin	N	N	U	U	U	N(Y)	N	N	Unl - c	U	N	High#2
Efrotomycin	N	N	U	U	U	Y	N	N	N	N	-->	Low
Enramycin / Enduramycin	N	N	U	U	U	N (Y)	N	N	Unl - c	U	N	High#2
Fosfomycin	N	N	U	U	U	N	N	N	Y	U	N	High#1
Gatifloxacin	N	N	U	U	U	N	N	N	Unl - d	N	-->	Low
Griseofulvin	N	N	U	U	U	N	*Y*	N	Y	Y	N	High
Hainanmycin	N	N	U	U	U	N(Y)	N	N	Unl - c	U	N	High#2
Hygromycin b	N	N	U	U	U	Y	N	N	Unl - c	U	N	High#2
Leucomycin / Kitasamycin	N	N	U	U	U	N (Y)	N	N	Unl - c	U	N	High#2
Levofloxacin	N	N	U	U	U	N	N	N	Y	U	N	High#1
Lomefloxacin	N	N	U	U	U	N	N	N	Y	U	N	High#1
Mequindox	N	N	U	U	U	N	N	N	Y	U	N	High#1
Moxifloxacin	N	N	U	U	U	N	N	N	Y	U	N	High#1

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?						Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Controlled on forbidden substances list**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
Norfloxacin	N	N	U	U	U	N	N	N	Y	U	N	High#1
Nystatin	N	N	U	U	U	Y	Y	N	Y	Y	N	High
Ofloxacin	N	N	U	U	U	N	*Y*	N	Y	Y	N	High
Olaquindox	N	N	U	U	N	N(Y)	N	N	Unl - c	U	N	High#2
Orbifloxacin	N	N	U	U	U	N	Y	N	Unl - d	U	N	High#2
Pazufloxacin	N	N	U	U	U	N	N	N	Y	U	N	High#1
Piperacillin	N	N	U	U	U	N	N	N	Y	U	N	High#1
Pradofloxacin	N	N	U	U	U	N	Y	N	Unl - d	U	N	High#2
Quinocetone	N	N	U	U	U	N	N	N	Unl - c	N	-->	Low
Sedecamycin	N	N	U	U	U	N(Y)	N	N	Unl - c	U	N	High#2
Ticarcillin	N	N	U	U	U	N	*Y*	N	Y	Y	N	High

[1]This column specifies FDA approval and between brackets Chinese approval

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A8.5 *Prioritisation of antimicrobial substances in goat*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
Amikacin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Azithromycin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Carbadox	N	N	U	U	N	Y	N	Unl - c	U	N	High#2
Cefadroxil	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Cefixime	N	N	U	U	U	N	N	Y	U	N	High#1
Cefotaxime	N	N	U	U	U	N	N	Y	U	N	High#1
Cefovecin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Ceftriaxone	N	N	U	U	U	N	N	Y	U	N	High#1
Clindamycin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Cyadox	N	N	U	U	U	N	N	N	N	-->	Low
Destomycin	N	N	U	U	U	N(Y)	N	Unl - c	U	N	High#2
Efrotomycin	N	N	U	U	U	Y	N	N	N	-->	Low
Enramycin / Enduramycin	N	N	U	U	U	N (Y)	N	Unl - c	U	N	High#2
Fosfomycin	N	N	U	U	U	N	N	Y	U	N	High#1
Gatifloxacin	N	N	U	U	U	N	N	Unl - d	N	-->	Low
Griseofulvin	N	N	U	U	U	N	*Y*	Unl - d	U	N	High#2
Hainanmycin	N	N	U	U	U	N(Y)	N	Unl - c	U	N	High#2
Hygromycin b	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Leucomycine / Kitasamycin	N	N	U	U	U	N (Y)	N	Unl - c	U	N	High#2
Levofloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Lomefloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Mequindox	N	N	U	U	U	N	N	Y	U	N	High#1
Moxifloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Norfloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Nystatin	N	N	U	U	U	Y	Y	Y	Y	N	High
Ofloxacin	N	N	U	U	U	N	*Y*	Y	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
Olaquindox	N	N	U	U	N	N(Y)	N	Unl - c	U	N	High#2
Orbifloxacin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Pazufloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Piperacillin	N	N	U	U	U	N	N	Y	U	N	High#1
Pradofloxacin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Quinocetone	N	N	U	U	U	N	N	Unl - c	N	-->	Low
Sedecamycin	N	N	U	U	U	N(Y)	N	Unl - c	U	N	High#2
Ticarcillin	N	N	U	U	U	N	*Y*	Unl - d	U	N	High#2

[1]This column specifies FDA approval and between brackets Chinese approval

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A8.6 *Prioritisation of antimicrobial substances in sheep*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
Amikacin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Azithromycin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Carbadox	N	N	U	U	N	Y	N	Unl - c	U	N	High#2
Cefadroxil	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Cefixime	N	N	U	U	U	N	N	Y	U	N	High#1
Cefotaxime	N	N	U	U	U	N	N	Y	U	N	High#1
Cefovecin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Ceftriaxone	N	N	U	U	U	N	N	Y	U	N	High#1
Clindamycin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Cyadox	N	N	U	U	U	N	N	N	N	-->	Low
Destomycin	N	N	U	U	U	N(Y)	N	Unl - c	U	N	High#2
Efrotomycin	N	N	U	U	U	Y	N	N	N	-->	Low
Enramycin / Enduramycin	N	N	U	U	U	N (Y)	N	Unl - c	U	N	High#2
Fosfomycin	N	N	U	U	U	N	N	Y	U	N	High#1
Gatifloxacin	N	N	U	U	U	N	N	Unl - d	N	-->	Low
Griseofulvin	N	N	U	U	U	N	*Y*	Unl - d	U	N	High#2
Hainanmycin	N	N	U	U	U	N(Y)	N	Unl - c	U	N	High#2
Hygromycin b	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Leucomycin / Kitasamycin	N	N	U	U	U	N (Y)	N	Unl - c	U	N	High#2
Levofloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Lomefloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Mequindox	N	N	U	U	U	N	N	Y	U	N	High#1
Moxifloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Norfloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Nystatin	N	N	U	U	U	Y	Y	Y	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
Ofloxacin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Olaquindox	N	N	U	U	N	N(Y)	N	Unl - c	U	N	High#2
Orbifloxacin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Pazufloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Piperacillin	N	N	U	U	U	N	N	Y	U	N	High#1
Pradofloxacin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Quinocetone	N	N	U	U	U	N	N	Unl - c	N	-->	Low
Sedecamycin	N	N	U	U	U	N(Y)	N	Unl - c	U	N	High#2
Ticarcillin	N	N	U	U	U	N	*Y*	Unl - d	U	N	High#2

[1]This column specifies FDA approval and between brackets Chinese approval

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A8.7 *Prioritisation of antimicrobial substances in poultry*

Substance	EFSA 2013-2018	RASFF 2013 - 2019	NP data 2013-2018	Conclusion	Non-compliances in eggs	Approved for use in food producing species outside EU[1]	Registered product EU for companion animals	Availability (alibaba/ebay)	Conclusion
Amikacin	N	N	U	U	U	N	*Y*	Y	Y
Azithromycin	N	Y	U	Y	-->	-->	-->	-->	-->
Carbadox	N	N	U	U	U	Y	N	Y	Y
Cefadroxil	N	N	U	U	U	N	Y	Unl - d	U
Cefixime	N	N	U	U	U	N	N	Y	U
Cefotaxime	N	N	U	U	U	N	N	Y	U
Cefovecin	N	N	U	U	U	N	Y	Unl - d	U
Ceftriaxone	N	N	U	U	U	N	N	Y	U
Clindamycin	N	N	U	U	U	N	Y	Unl - d	U
Cyadox	N	N	U	U	U	N	N	N	N
Destomycin	N	N	U	U	U	N(Y)	N	Y	Y
Efrotomycin	N	N	U	U	U	Y	N	N	N
Enramycin / Enduramycin	N	N	U	U	U	N (Y)	N	Y	Y
Fosfomycin	N	N	U	U	U	N	N	Y	U
Gatifloxacin	N	N	U	U	U	N	N	Unl - d	N
Griseofulvin	N	N	U	U	U	N	*Y*	Unl - d	U
Hainanmycin	N	N	U	U	U	N(Y)	N	Y	Y
Hygromycin b	N	N	U	U	U	Y	N	Y	Y
Leucomycine / Kitasamycin	N	N	U	U	U	N (Y)	N	Y	Y
Levofloxacin	N	N	U	U	U	N	N	Y	U
Lomefloxacin	N	N	U	U	U	N	N	Y	U
Mequindox	N	N	U	U	U	N	N	Y	U
Moxifloxacin	N	N	U	U	U	N	N	Y	U
Norfloxacin	N	N	U	U	U	N	N	Y	U
Nystatin	N	N	U	U	U	Y	(Y)	Y	Y
Ofloxacin	N	N	U	U	U	N	*Y*	Y	Y
Olaquindox	N	N	U	U	U	N(Y)	N	Y	Y
Orbifloxacin	N	N	U	U	U	N	Y	Unl - d	U
Pazufloxacin	N	N	U	U	U	N	N	Y	U
Piperacillin	N	N	U	U	U	N	N	Y	U
Pradofloxacin	N	N	U	U	U	N	Y	Unl - d	U
Quinocetone	N	N	U	U	U	N	N	Y	U
Sedecamycin	N	N	U	U	U	N(Y)	N	Y[2]	Y
Ticarcillin	N	N	U	U	U	N	*Y*	Unl - d	U

[1]This column specifies FDA approval and between brackets Chinese approval

[2]No products found in English, but searching with the Chinese translation does show products on alibaba.com

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A8.8 *Prioritisation of antimicrobial substances in eggs*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
Amikacin	N	N	U	U	U	N	*Y*	Y	Y	N	High
Azithromycin	N	N	U	U	Y	-->	-->	-->	-->	N	High
Carbadox	N	N	U	U	U	Y	N	Y	Y	N	High
Cefadroxil	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Cefixime	N	N	U	U	U	N	N	Y	U	N	High#1
Cefotaxime	N	N	U	U	U	N	N	Y	U	N	High#1
Cefovecin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Ceftriaxone	N	N	U	U	U	N	N	Y	U	N	High#1
Clindamycin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Cyadox	N	N	U	U	U	N	N	N	N	-->	Low
Destomycin	N	N	U	U	U	N(Y)	N	Y	Y	N	High
Efrotomycin	N	N	U	U	U	Y	N	N	N	-->	Low
Enramycin / Enduramycin	N	N	U	U	U	N (Y)	N	Y	Y	N	High
Fosfomycin	N	N	U	U	U	N	N	Y	U	N	High#1
Gatifloxacin	N	N	U	U	U	N	N	Unl - d	N	-->	Low
Griseofulvin	N	N	U	U	U	N	*Y*	Unl - d	U	N	High#2
Hainanmycin	N	N	U	U	U	N(Y)	N	Y	Y	N	High
Hygromycin b	N	N	U	U	U	Y	N	Y	Y	N	High
Leucomycine / Kitasamycin	N	N	U	U	U	N (Y)	N	Y	Y	N	High
Levofloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Lomefloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Mequindox	N	N	U	U	U	N	N	Y	U	N	High#1
Moxifloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Norfloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Nystatin	N	N	U	U	U	Y	Y	Y	Y	N	High
Ofloxacin	N	N	U	U	U	N	*Y*	Y	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
Olaquindox	N	N	U	U	U	N(Y)	N	Y	Y	N	High
Orbifloxacin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Pazufloxacin	N	N	U	U	U	N	N	Y	U	N	High#1
Piperacillin	N	N	U	U	U	N	N	Y	U	N	High#1
Pradofloxacin	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Quinocetone	N	N	U	U	U	N	N	Y	U	N	High#1
Sedecamycin	N	N	U	U	U	N(Y)	N	Y[2]	Y	N	High
Ticarcillin	N	N	U	U	U	N	*Y*	Unl - d	U	N	High#2

[1]This column specifies FDA approval and between brackets Chinese approval

[2]No products found in English, but searching with the Chinese translation does show products on alibaba.com

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Annex 9 Prioritisation of unauthorised coccidiostats and histomonostats (group A3d)

Table A9.1 *Prioritisation of unauthorised coccidiostats and histomonostats in bovine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
Aklomide	N	N	U	U	U	N	N	N	N	→	Low
Arprinocid	N	N	U	U	U	N	N	N	N	→	Low
Arsanilic acid	N	N	U	U	U	(Y)	N	Unl - c	U	N	High#2
Azanidazole	N	N	U	U	U	N	N	N	N	→	Low
Buparvaquone	N	N	U	U	U	(Y)	N	Y	Y	N	High
Buquinolate	N	N	U	U	U	N	N	N	N	→	Low
Carbasone	N	N	U	U	U	N	N	N	N	→	Low
Carnidazole	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Clopidol	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Diaveridine	N	N	U	U	U	(Y)	N	Y	Y	N	High
Diminazene	N	N	U	U	U	(Y)	N	Y	Y	N	High
Dinitolmide (Zoalene)	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Ethopabate	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Ipronidazole	N	N	U	U	Y[p]	→	→	→	Y	N	High3
Isometamidium	N	N	U	U	U	(Y)	Y[2]	Y	Y	N	High
Laidlomycin	N	N	U	U	U	Y	N	Y	Y	N	High
Nequinate (Methylbenzoquate)	N	N	U	U	U	(Y)	N	Unl - c	U	N	High#2
Nimorazole	N	N	U	U	U	N	N	Unl - c	N	→	Low
Nitarsone	N	N	U	U	U	N	N	N	N	→	Low
Nitromide	N	N	U	U	U	N	N	N	N	→	Low
Ormetoprim	N	N	U	U	U	Y	N	Unl - c	U	N	High#2

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
Ornidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High
Parvaquone	N	N	U	U	U	(Y)	N	Y	Y	N	High
Propenidazole	N	N	U	U	U	N	N	N	N	→	Low
Pyrimethamine	N	N	U	U	U	N	Y[2]	Unl - d	U	N	High#2
Roxarsone	N	N	U	U	U	(Y)	N	Unl - c	U	N	High#2
Secnidazole	N	N	U	U	U	N	N	Unl - d	N	→	Low
Sulfanitran	N	N	U	U	U	N	N	N	N	→	Low
Ternidazole	N	N	U	U	N	N	N	N	N	→	Low
Tinidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High

[1]This column specifies FDA approval and between brackets Chinese approval

[2]On equine essential substances list

B = bovine, H= horses, G=goat, S=sheep, p=porcine

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A9.2 *Prioritisation of unauthorised coccidiostats and histomonostats in milk*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
Aklomide	N	N	U	U	U	N	N	N	N	→	Low
Arprinocid	N	N	U	U	U	N	N	N	N	→	Low
Arsanilic acid	N	N	U	U	U	(Y)	N	Unl - c	U	N	High#2
Azanidazole	N	N	U	U	U	N	N	N	N	→	Low
Buparvaquone	N	N	U	U	U	(Y)	N	Y	Y	N	High
Buquinolate	N	N	U	U	U	N	N	N	N	→	Low
Carbasone	N	N	U	U	U	N	N	N	N	→	Low
Carnidazole	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Clopidol	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Diaveridine	N	N	U	U	U	(Y)	N	Y	Y	N	High
Diminazene	N	N	U	U	U	(Y)	N	Y	Y	N	High
Dinitolmide (Zoalene)	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Ethopabate	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Ipronidazole	N	N	N	N	U	N	N	N	N	→	Low
Isometamidium	N	N	U	U	U	(Y)	Y[2]	Y	Y	N	High
Laidlomycin	N	N	U	U	U	Y	N	Y	Y	N	High
Nequinate (Methylbenzoquate)	N	N	U	U	U	(Y)	N	Unl - c	U	N	High#2
Nimorazole	N	N	U	U	U	N	N	Unl - c	N	→	Low
Nitarsone	N	N	U	U	U	N	N	N	N	→	Low
Nitromide	N	N	U	U	U	N	N	N	N	→	Low
Ormetoprim	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Ornidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High
Parvaquone	N	N	U	U	U	(Y)	N	Y	Y	N	High
Propenidazole	N	N	U	U	U	N	N	N	N	→	Low
Pyrimethamine	N	N	U	U	U	N	Y[2]	Unl - d	U	N	High#2

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
Roxarsone	N	N	U	U	U	(Y)	N	Unl - c	U	N	High#2
Secnidazole	N	N	U	U	U	N	N	Unl - d	N	→	Low
Sulfanitran	N	N	U	U	U	N	N	N	N	→	Low
Ternidazole	N	N	N	N	U	N	N	N	N	→	Low
Tinidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High

[1]This column specifies FDA approval and between brackets Chinese approval

[2]On equine essential substances list

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A9.3 *Prioritisation of unauthorised coccidiostats and histomonostats in porcine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
Aklomide	N	N	U	U	U	N	N	N	N	→	Low
Arprinocid	N	N	U	U	U	N	N	N	N	→	Low
Arsanilic acid	N	N	U	U	U	(Y)	N	Y	Y	N	High
Azanidazole	N	N	U	U	U	N	N	N	N	→	Low
Buparvaquone	N	N	U	U	U	(Y)	N	Unl - e	U	N	High#2
Buquinolate	N	N	U	U	U	N	N	N	N	→	Low
Carbasone	N	N	U	U	U	N	N	N	N	→	Low
Carnidazole	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Clopidol	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Diaveridine	N	N	U	U	U	(Y)	N	Y	Y	N	High
Diminazene	N	N	U	U	U	(Y)	N	Unl - e	U	N	High#2
Dinitolmide (Zoalene)	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Ethopabate	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Ipronidazole	Y	N	N	Y	→	→	→	→	→	N	High3
Isometamidium	N	N	U	U	U	(Y)	Y[2]	Unl - e	U	N	High#2
Laidlomycin	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Nequinate (Methylbenzoquate)	N	N	U	U	U	(Y)	N	Unl - c	U	N	High#2
Nimorazole	N	N	U	U	U	N	N	Y	U	N	High#1
Nitarsone	N	N	U	U	U	N	N	N	N	→	Low
Nitromide	N	N	U	U	U	N	N	N	N	→	Low
Ormetoprim	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Ornidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High
Parvaquone	N	N	U	U	U	(Y)	N	Unl - e	U	N	High#2
Propenidazole	N	N	U	U	U	N	N	N	N	→	Low
Pyrimethamine	N	N	U	U	U	N	Y[2]	Unl - d	U	N	High#2
Roxarsone	N	N	U	U	U	(Y)	N	Y	Y	N	High
Secnidazole	N	N	U	U	U	N	N	Unl - d	N	→	Low
Sulfanitran	N	N	U	U	U	N	N	N	N	→	Low

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
Ternidazole	N	N	N	N	N	N	N	N	N	→	Low
Tinidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High

[1]This column specifies FDA approval and between brackets Chinese approval

[2]On equine essential substances list

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A9.4 *Prioritisation of unauthorised coccidiostats and histomonostats in horse*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?						Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Controlled on forbidden substances list**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
Aklomide	N	N	U	U	U	N	N	N	N	N	→	Low
Arprinocid	N	N	U	U	U	N	N	N	N	N	→	Low
Arsanilic acid	N	N	U	U	U	(Y)	N	N	Unl - c	U	N	High#2
Azanidazole	N	N	U	U	U	N	N	N	N	N	→	Low
Buparvaquone	N	N	U	U	U	(Y)	N	N	Y	Y	N	High
Buquinolate	N	N	U	U	U	N	N	N	N	N	→	Low
Carbasone	N	N	U	U	U	N	N	N	N	N	→	Low
Carnidazole	N	N	U	U	U	N	Y	N	Unl - d	U	N	High#2
Clopidol	N	N	U	U	U	Y	N	N	Unl - c	U	N	High#2
Diaveridine	N	N	U	U	U	(Y)	N	Y	Y	Y	N	High
Diminazene	N	N	U	U	U	(Y)	N	N	Y	Y	N	High
Dinitolmide (Zoalene)	N	N	U	U	U	Y	N	N	Unl - c	U	N	High#2
Ethopabate	N	N	U	U	U	Y	N	N	Unl - c	U	N	High#2
Ipronidazole	N	N	U, n<10	U	Y[p]	→	→	→	→	Y	N	High3
Isometamidium	N	N	U	U	U	(Y)	Y[2]	N	Y	Y	N	High
Laidlomycin	N	N	U	U	U	Y	N	N	Unl - c	U	N	High#2
Nequinate (Methylbenzoquate)	N	N	U	U	U	(Y)	N	N	Unl - c	U	N	High#2
Nimorazole	N	N	U	U	U	N	N	N	Unl - c	N	→	Low
Nitarsone	N	N	U	U	U	N	N	N	N	N	→	Low
Nitromide	N	N	U	U	U	N	N	N	N	N	→	Low
Ormetoprim	N	N	U	U	U	Y	N	N	Unl - c	U	N	High#2
Ornidazole	N	N	U	U	U	(Y)	N	N	Y	Y	N	High
Parvaquone	N	N	U	U	U	(Y)	N	N	Y	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?						Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Controlled on forbidden substances list**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
Propenidazole	N	N	U	U	U	N	N	N	N	N	→	Low
Pyrimethamine	N	N	U	U	U	N	Y[2]	Y	Y	Y	N	High
Roxarsone	N	N	U	U	U	(Y)	N	Y	Unl - c	U	N	High#2
Secnidazole	N	N	U	U	U	N	N	N	Unl - d	N	→	Low
Sulfanitran	N	N	U	U	U	N	N	N	N	N	→	Low
Ternidazole	N	N	(N)	U	N	N	N	N	N	N	→	Low
Tinidazole	N	N	U	U	U	(Y)	N	N	Y	Y	N	High

[1]This column specifies FDA approval and between brackets Chinese approval

[2]On equine essential substances list

B = bovine, H= horses, G=goat, S=sheep, p=porcine

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A9.5 *Prioritisation of unauthorised coccidiostats and histomonostats in goat*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
Aklomide	N	N	U	U	U	N	N	N	N	→	Low
Arprinocid	N	N	U	U	U	N	N	N	N	→	Low
Arsanilic acid	N	N	U	U	U	(Y)	N	Unl - c	U	N	High#2
Azanidazole	N	N	U	U	U	N	N	N	N	→	Low
Buparvaquone	N	N	U	U	U	(Y)	N	Y	Y	N	High
Buquinolate	N	N	U	U	U	N	N	N	N	→	Low
Carbasone	N	N	U	U	U	N	N	N	N	→	Low
Carnidazole	N	N	U	U	U	N	Y	Unl - d	U	N	High#2
Clopidol	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Diaveridine	N	N	U	U	U	(Y)	N	Y	Y	N	High
Diminazene	N	N	U	U	U	(Y)	N	Y	Y	N	High
Dinitolmide (Zoalene)	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Ethopabate	N	N	U	U	U	Y	N	Unl -c	U	N	High#2
Ipronidazole	N	N	U	U	Y[p]	→	→	→	Y	N	High3
Isometamidium	N	N	U	U	U	(Y)	Y[2]	Y	Y	N	High
Laidlomycin	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Nequinate (Methylbenzoquate)	N	N	U	U	U	(Y)	N	Unl - c	U	N	High#2
Nimorazole	N	N	U	U	U	N	N	Unl - c	N	→	Low
Nitarsone	N	N	U	U	U	N	N	N	N	→	Low
Nitromide	N	N	U	U	U	N	N	N	N	→	Low
Ormetoprim	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Ornidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High
Parvaquone	N	N	U	U	U	(Y)	N	Y	Y	N	High
Propenidazole	N	N	U	U	U	N	N	N	N	→	Low
Pyrimethamine	N	N	U	U	U	N	Y[2]	Unl -d	U	N	High#2
Roxarsone	N	N	U	U	U	(Y)	N	Unl - c	U	N	High#2
Secnidazole	N	N	U	U	U	N	N	Unl -d	N	→	Low

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
Sulfanitran	N	N	U	U	U	N	N	N	N	→	Low
Ternidazole	N	N	U	U	N	N	N	N	N	→	Low
Tinidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High

[1]This column specifies FDA approval and between brackets Chinese approval

[2]On equine essential substances list

B = bovine, H= horses, G=goat, S=sheep, p=porcine

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A9.6 *Prioritisation of unauthorised coccidiostats and histomonostats in sheep*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
Aklomide	N	N	U	U	U	N	N	N	N	→	Low
Arprinocid	N	N	U	U	U	N	N	N	N	→	Low
Arsanilic acid	N	N	U	U	U	(Y)	N	Unl -c	U	N	High#2
Azanidazole	N	N	U	U	U	N	N	N	N	→	Low
Buparvaquone	N	N	U	U	U	(Y)	N	Y	Y	N	High
Buquinolate	N	N	U	U	U	N	N	N	N	→	Low
Carbasone	N	N	U	U	U	N	N	N	N	→	Low
Carnidazole	N	N	U	U	U	N	Y	Unl -d	U	N	High#2
Clopidol	N	N	U	U	U	Y	N	Unl -c	U	N	High#2
Diaveridine	N	N	U	U	U	(Y)	N	Y	Y	N	High
Diminazene	N	N	U	U	U	(Y)	N	Y	Y	N	High
Dinitolmide (Zoalene)	N	N	U	U	U	Y	N	Unl -c	U	N	High#2
Ethopabate	N	N	U	U	U	Y	N	Unl -c	U	N	High#2
Ipronidazole	N	N	U	U	Y[P]	→	→	→	Y	N	High3
Isometamidium	N	N	U	U	U	(Y)	Y[2]	Y	Y	N	High
Laidlomycin	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Nequinate (Methylbenzoquate)	N	N	U	U	U	(Y)	N	Unl -c	U	N	High#2
Nimorazole	N	N	U	U	U	N	N	Unl - c	N	→	Low
Nitarsone	N	N	U	U	U	N	N	N	N	→	Low
Nitromide	N	N	U	U	U	N	N	N	N	→	Low
Ormetoprim	N	N	U	U	U	Y	N	Unl -c	U	N	High#2
Ornidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High
Parvaquone	N	N	U	U	U	(Y)	N	Y	Y	N	High
Propenidazole	N	N	U	U	U	N	N	N	N	→	Low
Pyrimethamine	N	N	U	U	U	N	Y[2]	Unl - d	U	N	High#2
Roxarsone	N	N	U	U	U	(Y)	N	Unl -c	U	N	High#2

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
Secnidazole	N	N	U	U	U	N	N	Unl - d	N	→	Low
Sulfanitran	N	N	U	U	U	N	N	N	N	→	Low
Ternidazole	N	N	U	U	N	N	N	N	N	→	Low
Tinidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High

[1]This column specifies FDA approval and between brackets Chinese approval

[2]On equine essential substances list

B = bovine, H= horses, G=goat, S=sheep, p=porcine

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A9.7 *Prioritisation of unauthorised coccidiostats and histomonostats in poultry*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
Aklomide	N	N	U	U	U	N	N	N	N	→	Low
Arprinocid	N	N	U	U	U	N	N	N	N	→	Low
Arsanilic acid	N	N	U	U	U	Y	N	Y	Y	N	High
Azanidazole	N	N	U	U	U	N	N	N	N	→	Low
Buparvaquone	N	N	U	U	U	(Y)	N	Unl - e	U	N	High#2
Buquinolate	N	N	U	U	U	N	N	N	N	→	Low
Carbasone	N	N	U	U	U	N	N	N	N	→	Low
Carnidazole	N	N	U	U	U	N	Y	Y	Y	N	High
Clopidol	N	Y	U	Y	U	Y	N	Y	Y	N	High
Diaveridine	N	N	U	U	U	(Y)	N	Y	Y	N	High
Diminazene	N	N	U	U	U	(Y)	N	Unl - e	U	N	High#2
Dinitolmide (Zoalene)	N	N	U	U	U	Y	N	Y	Y	N	High
Ethopabate	N	N	U	U	U	Y	N	Y	Y	N	High
Ipronidazole	N	N	N	N	N	N	N	N	N	→	Low
Isometamidium	N	N	U	U	U	(Y)	Y[2]	Unl - e	U	N	High#2
Laidlomycin	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Nequinate (Methylbenzoquate)	N	N	U	U	U	(Y)	N	Y	Y	N	High
Nimorazole	N	N	U	U	U	N	N	Y	U	N	High#1
Nitarsone	N	N	U	U	U	N	N	N	N	→	Low
Nitromide	N	N	U	U	U	N	N	N	N	→	Low
Ormetoprim	N	N	U	U	U	Y	N	Y	Y	N	High
Ornidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High
Parvaquone	N	N	U	U	U	(Y)	N	Unl - e	U	N	High#2
Propenidazole	N	N	U	U	U	N	N	N	N	→	Low
Pyrimethamine	N	N	U	U	U	N	Y[2]	Y	Y	N	High
Roxarsone	N	N	U	U	U	(Y)	N	Y	Y	N	High
Secnidazole	N	N	U	U	U	N	N	Y	U	N	High#1

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
Sulfanitran	N	N	U	U	U	N	N	N	N	→	Low
Ternidazole	N	N	N	N	N	N	N	N	N	→	Low
Tinidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High

[1]This column specifies FDA approval and between brackets Chinese approval

[2]On equine essential substances list

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A9.8 *Prioritisation of unauthorised coccidiostats and histomonostats in eggs*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
Aklomide	N	N	U	U	U	N	N	N	N	→	Low
Arprinocid	N	N	U	U	U	N	N	N	N	→	Low
Arsanilic acid	N	N	U	U	U	Y	N	Y	Y	N	High
Azanidazole	N	N	U	U	U	N	N	N	N	→	Low
Buparvaquone	N	N	U	U	U	(Y)	N	Unl - e	U	N	High#2
Buquinolate	N	N	U	U	U	N	N	N	N	→	Low
Carbasone	N	N	U	U	U	N	N	N	N	→	Low
Carnidazole	N	N	U	U	U	N	Y	Y	Y	N	High
Clopidol	N	N	U	U	Y	Y	N	Y	Y	N	High
Diaveridine	N	N	U	U	U	(Y)	N	Y	Y	N	High
Diminazene	N	N	U	U	U	(Y)	N	Unl - e	U	N	High#2
Dinitolmide (Zoalene)	N	N	U	U	U	Y	N	Y	Y	N	High
Ethopabate	N	N	U	U	U	Y	N	Y	Y	N	High
Ipronidazole	N	N	N	N	N	N	N	N	N	→	Low
Isometamidium	N	N	U	U	U	(Y)	Y[2]	Unl - e	U	N	High#2
Laidlomycin	N	N	U	U	U	Y	N	Unl - c	U	N	High#2
Nequinate (Methylbenzoquate)	N	N	U	U	U	(Y)	N	Y	Y	N	High
Nimorazole	N	N	U	U	U	N	N	Y	U	N	High#1
Nitarsone	N	N	U	U	U	N	N	N	N	→	Low
Nitromide	N	N	U	U	U	N	N	N	N	→	Low
Ormetoprim	N	N	U	U	U	Y	N	Y	Y	N	High
Ornidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High
Parvaquone	N	N	U	U	U	(Y)	N	Unl - e	U	N	High#2
Propenidazole	N	N	U	U	U	N	N	N	N	→	Low
Pyrimethamine	N	N	U	U	U	N	Y[2]	Y	Y	N	High
Roxarsone	N	N	U	U	U	(Y)	N	Y	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved for use in food producing species outside EU[1]**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
Secnidazole	N	N	U	U	U	N	N	Y	U	N	High#1
Sulfanitran	N	N	U	U	U	N	N	N	N	→	Low
Ternidazole	N	N	N	N	N	N	N	N	N	→	Low
Tinidazole	N	N	U	U	U	(Y)	N	Y	Y	N	High

[1]This column specifies FDA approval and between brackets Chinese approval

[2]On equine essential substances list

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Annex 10 Prioritisation of protein and peptide hormones (group A3e)

Table A10.1 *Prioritisation of protein and peptide hormones in bovine and milk*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay/others)**	**Conclusion**	**Conclusion**	**Bovine and milk**
GHRP-1	N	N	U	U	U	N	N	N	N	->	Low
GHRP-2	N	N	U	U	U	N	N	Y	U	N	High#1
GHRP-4	N	N	U	U	U	N	N	N	N	->	Low
GHRP-5	N	N	U	U	U	N	N	N	N	->	Low
GHRP-6	N	N	U	U	U	N	N	Y	U	N	High#1
hexarelin (examorelin)	N	N	U	U	U	N	N	Y	U	N	High#1
ipamorelin	N	N	U	U	U	N	N	Y	U	N	High#1
IGF-1	N	N	U	U	U	N	N	Y	U	N	High#1
IGF-2	N	N	U	U	U	N	N	Y	U	N	High#1
Des1-3-IGF-1	N	N	U	U	U	N	N	Y	U	N	High#1
R3-IGF-1	N	N	U	U	U	N	N	N	N	->	Low
Long-R3-IGF-1	N	N	U	U	U	N	N	Y	U	N	High#1
Des1-10-Long-R3-IGF-1	N	N	U	U	U	N	N	N	N	->	Low
recombinant bovine somatotropin (rBST)	N	N	U	U	U	Yb	N	Y	Y	Y	Medium

B = bovine, H= horses, G=goat, S=sheep, p=porcine

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

Table A10.2 *Prioritisation of protein and peptide hormones in porcine, horse, goat, sheep, poultry and eggs*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay/others)**	**Conclusion**	**Conclusion**	**Other species**
GHRP-1	N	N	U	U	U	N	N	N	N	->	Low
GHRP-2	N	N	U	U	U	N	N	Y	U	N	High#1
GHRP-4	N	N	U	U	U	N	N	N	N	->	Low
GHRP-5	N	N	U	U	U	N	N	N	N	->	Low
GHRP-6	N	N	U	U	U	N	N	Y	U	N	High#1
hexarelin (examorelin)	N	N	U	U	U	N	N	Y	U	N	High#1
ipamorelin	N	N	U	U	U	N	N	Y	U	N	High#1
IGF-1	N	N	U	U	U	N	N	Y	U	N	High#1
IGF-2	N	N	U	U	U	N	N	Y	U	N	High#1
Des1-3-IGF-1	N	N	U	U	U	N	N	Y	U	N	High#1
R3-IGF-1	N	N	U	U	U	N	N	N	N	->	Low
Long-R3-IGF-1	N	N	U	U	U	N	N	Y	U	N	High#1
Des1-10-Long-R3-IGF-1	N	N	U	U	U	N	N	N	N	->	Low
recombinant bovine somatotropin (rBST)	N	N	U	U	U	Yb	N	Y	Y	N	High3

B = bovine, H= horses, G=goat, S=sheep, p=porcine

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely (not found for this group of substances)

Annex 11 Prioritisation of unauthorised sedatives (group A3f)

Table A11.1 *Prioritisation of unauthorised sedatives in bovine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
Acepromazine	N	N	N	N	N	→	→	→	N	→	Low
Alfaxalone	N	N	U	U	U	N	Y [d, c, r]	N	N	→	Low
Alprazolam	N	N	U	U	U	N	N	Y	U	N	High#1
Apomorphine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Buprenorphine	N	N	U	U	U	N	Y [d, c, h]	Y	Y	N	High
Clomipramine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Dexmedetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Diazepam	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Droperidol	N	N	U	U	U	N	N	Unl - b	N	→	Low
Estazolam	N	N	U	U	U	N	N	N	N	→	Low
Fentanyl	N	N	U	U	U	N	Y [d, r, rd]	Y	Y	N	High
Fluoxetin	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Haloperidol	N	N	N	N	N	→	→	→	N	→	Low
Imepitoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Imipramine	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Medetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Methadone	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Midazolam	N	N	U	U	U	N	Y [h]	Y	Y	N	High
Mirtazepine	N	N	U	U	U	N	Y [c]	Y	Y	N	High
Nitrazepam	N	N	U	U	U	N	N	N	N	→	Low
Oxazepam	N	N	U	U	U	N	N	Y	U	N	High#1
Pentobarbital	N	N	U	U	U	N	Y	Unl - e	U	N	High#2

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Bovine**
Pergolide	N	N	U	U	U	N	Y [h]	Unl - b	U	N	High#2
Perphenazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Phenobarbital	N	N	U	U	U	N	Y [d]	N	N	→	Low
Phenytoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Promazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Promethazine	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Propionylpromazine	N	N	N	N	Y [p]	→	→	→	Y	N	High
Propofol	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Ropinirole	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Selegiline	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Sevoflurane	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Tiletamine HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low
Tramadol	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Triflupromazine	N	N	U	U	U	N	N	Y	U	N	High#1
Zolazepam HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low

B = bovine, H= horses, G=goat, S=sheep, p=porcine, poul=poultry, c = cat, d = dog, r = rabbit, rd = rodent, o = other animals not used for consumption

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A11.2 *Prioritisation of unauthorised sedatives in milk*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
Acepromazine	N	N	U	U	N	N	Y [d c h]	Y	Y	N	High
Alfaxalone	N	N	U	U	U	N	Y [d, c, r]	N	N	→	Low
Alprazolam	N	N	U	U	U	N	N	Y	U	N	High#1
Apomorphine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Buprenorphine	N	N	U	U	U	N	Y [d, c, h]	Y	Y	N	High
Clomipramine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Dexmedetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Diazepam	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Droperidol	N	N	U	U	U	N	N	Unl - b	N	→	Low
Estazolam	N	N	U	U	U	N	N	N	N	→	Low
Fentanyl	N	N	U	U	U	N	Y [d, r, rd]	Y	Y	N	High
Fluoxetin	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Haloperidol	N	N	U	U	N	N	N	Unl - b	N	→	Low
Imepitoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Imipramine	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Medetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Methadone	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Midazolam	N	N	U	U	U	N	Y [h]	Y	Y	N	High
Mirtazepine	N	N	U	U	U	N	Y [c]	Y	Y	N	High
Nitrazepam	N	N	U	U	U	N	N	N	N	→	Low
Oxazepam	N	N	U	U	U	N	N	Y	U	N	High#1
Pentobarbital	N	N	U	U	U	N	Y	Unl - e	U	N	High#2
Pergolide	N	N	U	U	U	N	Y [h]	Unl - b	U	N	High#2
Perphenazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Phenobarbital	N	N	U	U	U	N	Y [d]	N	N	→	Low
Phenytoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Promazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Promethazine	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other milk producing animals (goat, sheep) or bovine**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Milk**
Propionylpromazine	N	N	U	U	N	N	N	N	N	→	Low
Propofol	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Ropinirole	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Selegiline	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Sevoflurane	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Tiletamine HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low
Tramadol	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Trifluprom azine	N	N	U	U	U	N	N	Y	U	N	High#1
Zolazepam HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low

B = bovine, H= horses, G=goat, S=sheep, p=porcine, poul=poultry, c = cat, d = dog, r = rabbit, rd = rodent, o = other animals not used for consumption

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A11.3 *Prioritisation of unauthorised sedatives in porcine*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
Acepromazine	N	N	N	N	N	→	→	→	N	→	Low
Alfaxalone	N	N	U	U	U	N	Y [d, c, r]	N	N	→	Low
Alprazolam	N	N	U	U	U	N	N	Y	U	N	High#1
Apomorphine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Buprenorphine	N	N	U	U	U	N	Y [d, c, h]	Y	Y	N	High
Clomipramine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Dexmedetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Diazepam	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Droperidol	N	N	U	U	U	N	N	Unl - b	N	→	Low
Estazolam	N	N	U	U	U	N	N	N	N	→	Low
Fentanyl	N	N	U	U	U	N	Y [d, r, rd]	Y	Y	N	High
Fluoxetin	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Haloperidol	N	N	N	N	N	→	→	→	N	→	Low
Imepitoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Imipramine	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Medetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Methadone	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Midazolam	N	N	U	U	U	N	Y [h]	Y	Y	N	High
Mirtazepine	N	N	U	U	U	N	Y [c]	Y	Y	N	High
Nitrazepam	N	N	U	U	U	N	N	N	N	→	Low
Oxazepam	N	N	U	U	U	N	N	Y	U	N	High#1
Pentobarbital	N	N	U	U	U	N	Y	Unl - e	U	N	High#2
Pergolide	N	N	U	U	U	N	Y [h]	Unl - b	U	N	High#2
Perphenazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Phenobarbital	N	N	U	U	U	N	Y [d]	N	N	→	Low
Phenytoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Promazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Promethazine	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Propionylpromazine	Y	N	N	Y	→	→	→	→	→	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Porcine**
Propofol	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Ropinirole	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Selegiline	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Sevoflurane	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Tiletamine HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low
Tramadol	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Triflupromazine	N	N	U	U	U	N	N	Y	U	N	High#1
Zolazepam HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low

B = bovine, H= horses, G=goat, S=sheep, p=porcine, poul=poultry, c = cat, d = dog, r = rabbit, rd = rodent, o = other animals not used for consumption

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A11.4 *Prioritisation of unauthorised sedatives in horse*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
Acepromazine	Y	N	U, N<10	Y	→	→	→	→	→	N	High
Alfaxalone	N	N	U	U	U	N	Y [d, c, r]	N	N	→	Low
Alprazolam	N	N	U	U	U	N	N	Y	U	N	High#1
Apomorphine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Buprenorphine	N	N	U	U	U	N	Y [d, c, h]	Y	Y	N	High
Clomipramine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Dexmedetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Diazepam	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Droperidol	N	N	U	U	U	N	N	Unl - b	N	→	Low
Estazolam	N	N	U	U	U	N	N	N	N	→	Low
Fentanyl	N	N	U	U	U	N	Y [d, r, rd]	Y	Y	N	High
Fluoxetin	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Haloperidol	N	N	U, N<10	U	N	N	N	Unl - b	N	→	Low
Imepitoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Imipramine	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Medetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Methadone	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Midazolam	N	N	U	U	U	N	Y [h]	Y	Y	N	High
Mirtazapine	N	N	U	U	U	N	Y [c]	Y	Y	N	High
Nitrazepam	N	N	U	U	U	N	N	N	N	→	Low
Oxazepam	N	N	U	U	U	N	N	Y	U	N	High#1
Pentobarbital	N	N	U	U	U	N	Y	Unl - e	U	N	High#2
Pergolide	N	N	U	U	U	N	Y [h]	Y	Y	N	High
Perphenazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Phenobarbital	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Phenytoin	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Promazine	N	N	U	U	U	N	N	U	N	→	Low
Promethazine	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Propionylpromazine	N	N	U, N<10	U	Y [p]	→	→	→	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Horse**
Propofol	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Ropinirole	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Selegiline	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Sevoflurane	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Tiletamine HCl	N	N	U	U	U	N	Y [d, c, o]	Y	Y	N	High
Tramadol	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Triflupromazine	N	N	U	U	U	N	N	Y	U	N	High#1
Zolazepam HCl	N	N	U	U	U	N	Y [d, c, o]	Y	Y	N	High

B = bovine, H= horses, G=goat, S=sheep, p=porcine, poul=poultry, c = cat, d = dog, r = rabbit, rd = rodent, o = other animals not used for consumption

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A11.5 *Prioritisation of unauthorised sedatives in goat*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
Acepromazine	N	N	U, N<10	U	N	N	Y [d c h]	Y	Y	N	High
Alfaxalone	N	N	U	U	U	N	Y [d, c, r]	N	N	→	Low
Alprazolam	N	N	U	U	U	N	N	Y	U	N	High#1
Apomorphine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Buprenorphine	N	N	U	U	U	N	Y [d, c, h]	Y	Y	N	High
Clomipramine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Dexmedetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Diazepam	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Droperidol	N	N	U	U	U	N	N	Unl - b	N	→	Low
Estazolam	N	N	U	U	U	N	N	N	N	→	Low
Fentanyl	N	N	U	U	U	N	Y [d, r, rd]	Y	Y	N	High
Fluoxetin	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Haloperidol	N	N	U, N<10	U	N	N	N	Unl - b	N	→	Low
Imepitoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Imipramine	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Medetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Methadone	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Midazolam	N	N	U	U	U	N	Y [h]	Y	Y	N	High
Mirtazepine	N	N	U	U	U	N	Y [c]	Y	Y	N	High
Nitrazepam	N	N	U	U	U	N	N	N	N	→	Low
Oxazepam	N	N	U	U	U	N	N	Y	U	N	High#1
Pentobarbital	N	N	U	U	U	N	Y	Unl - e	U	N	High#2
Pergolide	N	N	U	U	U	N	Y [h]	Unl - b	U	N	High#2
Perphenazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Phenobarbital	N	N	U	U	U	N	Y [d]	N	N	→	Low
Phenytoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Promazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Promethazine	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Propionylpromazine	N	N	U, N<10	U	Y [p]	→	→	→	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Goat**
Propofol	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Ropinirole	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Selegiline	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Sevoflurane	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Tiletamine HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low
Tramadol	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Triflupromazine	N	N	U	U	U	N	N	Y	U	N	High#1
Zolazepam HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low

B = bovine, H= horses, G=goat, S=sheep, p=porcine, poul=poultry, c = cat, d = dog, r = rabbit, rd = rodent, o = other animals not used for consumption

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A11.6 *Prioritisation of unauthorised sedatives in sheep*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
Acepromazine	N	N	U, N<10	U	N	N	Y [d c h]	Y	Y	N	High
Alfaxalone	N	N	U	U	U	N	Y [d, c, r]	N	N	→	Low
Alprazolam	N	N	U	U	U	N	N	Y	U	N	High#1
Apomorphine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Buprenorphine	N	N	U	U	U	N	Y [d, c, h]	Y	Y	N	High
Clomipramine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Dexmedetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Diazepam	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Droperidol	N	N	U	U	U	N	N	Unl - b	N	→	Low
Estazolam	N	N	U	U	U	N	N	N	N	→	Low
Fentanyl	N	N	U	U	U	N	Y [d, r, rd]	Y	Y	N	High
Fluoxetin	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Haloperidol	N	N	U, N<10	U	N	N	N	Unl - b	N	→	Low
Imepitoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Imipramine	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Medetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Methadone	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Midazolam	N	N	U	U	U	N	Y [h]	Y	Y	N	High
Mirtazepine	N	N	U	U	U	N	Y [c]	Y	Y	N	High
Nitrazepam	N	N	U	U	U	N	N	N	N	→	Low
Oxazepam	N	N	U	U	U	N	N	Y	U	N	High#1
Pentobarbital	N	N	U	U	U	N	Y	Unl - e	U	N	High#2
Pergolide	N	N	U	U	U	N	Y [h]	Unl - b	U	N	High#2
Perphenazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Phenobarbital	N	N	U	U	U	N	Y [d]	N	N	→	Low
Phenytoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Promazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Promethazine	N	N	U	U	U	N	Y [d, c]	Y	Y	N	High
Propionylpromazine	N	N	U, N<10	U	Y [p]	→	→	→	Y	N	High

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances other mammals (except horse)**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Sheep**
Propofol	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Ropinirole	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Selegiline	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Sevoflurane	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Tiletamine HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low
Tramadol	N	N	U	U	U	N	Y [d]	Y	Y	N	High
Triflupromazine	N	N	U	U	U	N	N	Y	U	N	High#1
Zolazepam HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low

B = bovine, H= horses, G=goat, S=sheep, p=porcine, poul=poultry, c = cat, d = dog, r = rabbit, rd = rodent, o = other animals not used for consumption

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A11.7 *Prioritisation of unauthorised sedatives in poultry*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
Acepromazine	N	N	U	U	U	N	Y [d c h]	Unl - e	U	N	High#2
Alfaxalone	N	N	U	U	U	N	Y [d, c, r]	N	N	→	Low
Alprazolam	N	N	U	U	U	N	N	Unl - e	N	→	Low
Apomorphine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Buprenorphine	N	N	U	U	U	N	Y [d, c, h]	Unl - e	U	N	High#2
Clomipramine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Dexmedetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Diazepam	N	N	U	U	U	N	Y [d, c]	Unl - e	U	N	High#2
Droperidol	N	N	U	U	U	N	N	Unl - b	N	→	Low
Estazolam	N	N	U	U	U	N	N	N	N	→	Low
Fentanyl	N	N	U	U	U	N	Y [d, r, rd]	Unl - e	U	N	High#2
Fluoxetin	N	N	U	U	U	N	Y [d]	Unl - e	U	N	High#2
Haloperidol	N	N	U	U	U	N	N	Unl - b	N	→	Low
Imepitoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Imipramine	N	N	U	U	U	N	Y [d]	Unl - e	U	N	High#2
Medetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Methadone	N	N	U	U	U	N	Y [d, c]	Unl - e	U	N	High#2
Midazolam	N	N	U	U	U	N	Y [h]	Unl - e	U	N	High#2
Mirtazepine	N	N	U	U	U	N	Y [c]	Unl - e	U	N	High#2
Nitrazepam	N	N	U	U	U	N	N	N	N	→	Low
Oxazepam	N	N	U	U	U	N	N	Unl - e	N	→	Low
Pentobarbital	N	N	U	U	U	N	Y	Unl - e	U	N	High#2
Pergolide	N	N	U	U	U	N	Y [h]	Unl - b	U	N	High#2
Perphenazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Phenobarbital	N	N	U	U	U	N	Y [d]	N	N	→	Low
Phenytoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Promazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Promethazine	N	N	U	U	U	N	Y [d, c]	Unl - e	U	N	High#2
Propionylpromazine	N	N	U	U	U	N	N	N	N	→	Low
Propofol	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in eggs**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Poultry**
Ropinirole	N	N	U	U	U	N	Y [d]	Unl - e	U	N	High#2
Selegiline	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Sevoflurane	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Tiletamine HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low
Tramadol	N	N	U	U	U	N	Y [d]	Unl - e	U	N	High#2
Triflupromazine	N	N	U	U	U	N	N	Unl - e	N	→	Low
Zolazepam HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low

B = bovine, H= horses, G=goat, S=sheep, p=porcine, poul=poultry, c = cat, d = dog, r = rabbit, rd = rodent, o = other animals not used for consumption

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Table A11.8 *Prioritisation of unauthorised sedatives in eggs*

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
Acepromazine	N	N	U	U	U	N	Y [d c h]	Unl - e	U	N	High#2
Alfaxalone	N	N	U	U	U	N	Y [d, c, r]	N	N	→	Low
Alprazolam	N	N	U	U	U	N	N	Unl - e	N	→	Low
Apomorphine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Buprenorphine	N	N	U	U	U	N	Y [d, c, h]	Unl - e	U	N	High#2
Clomipramine	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Dexmedetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Diazepam	N	N	U	U	U	N	Y [d, c]	Unl - e	U	N	High#2
Droperidol	N	N	U	U	U	N	N	Unl - b	N	→	Low
Estazolam	N	N	U	U	U	N	N	N	N	→	Low
Fentanyl	N	N	U	U	U	N	Y [d, r, rd]	Unl - e	U	N	High#2
Fluoxetin	N	N	U	U	U	N	Y [d]	Unl - e	U	N	High#2
Haloperidol	N	N	U	U	U	N	N	Unl - b	N	→	Low
Imepitoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Imipramine	N	N	U	U	U	N	Y [d]	Unl - e	U	N	High#2
Medetomidine	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Methadone	N	N	U	U	U	N	Y [d, c]	Unl - e	U	N	High#2
Midazolam	N	N	U	U	U	N	Y [h]	Unl - e	U	N	High#2
Mirtazepine	N	N	U	U	U	N	Y [c]	Unl - e	U	N	High#2
Nitrazepam	N	N	U	U	U	N	N	N	N	→	Low
Oxazepam	N	N	U	U	U	N	N	Unl - e	N	→	Low
Pentobarbital	N	N	U	U	U	N	Y	Unl - e	U	N	High#2
Pergolide	N	N	U	U	U	N	Y [h]	Unl - b	U	N	High#2
Perphenazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Phenobarbital	N	N	U	U	U	N	Y [d]	N	N	→	Low
Phenytoin	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Promazine	N	N	U	U	U	N	N	Unl - b	N	→	Low
Promethazine	N	N	U	U	U	N	Y [d, c]	Unl - e	U	N	High#2
Propionylpromazine	N	N	U	U	U	N	N	N	N	→	Low
Propofol	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2

	Q1: Were any non-compliant residue data of the substance found in the last five years?				Q3: Are there indications for use of this substance in production systems for food producing animals?					Q2: Is a human health risk due to residues of this substance scientifically proven to be absent or negligible?	Conclusion priority
Substance	**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**Non-compliances in poultry**	**Approved product by FDA for use in food producing animals**	**Registered product EU for companion animals**	**Availability (alibaba/ebay)**	**Conclusion**	**Conclusion**	**Egg**
Ropinirole	N	N	U	U	U	N	Y [d]	Unl - e	U	N	High#2
Selegiline	N	N	U	U	U	N	Y [d]	Unl - b	U	N	High#2
Sevoflurane	N	N	U	U	U	N	Y [d, c]	Unl - b	U	N	High#2
Tiletamine HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low
Tramadol	N	N	U	U	U	N	Y [d]	Unl - e	U	N	High#2
Triflupromazine	N	N	U	U	U	N	N	Unl - e	N	→	Low
Zolazepam HCl	N	N	U	U	U	N	Y [d, c, o]	N	N	→	Low

B = bovine, H= horses, G=goat, S=sheep, p=porcine, poul=poultry, c = cat, d = dog, r = rabbit, rd = rodent, o = other animals not used for consumption

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

Unl. means Unlikely: substances are found online, but are less likely to be used by farmers, because they are:

a. Injectables/ointment/inhalation (not likely to be used in poultry)

b. Indistinct powders (powders are available, but there are doubts about their authenticity)

c. Feed additives (Y: target species, Unl.: other animals)

d. Not directly applicable (no products found that can be applied as such or no distinct VMPs for food producing species)

e. Not relevant to apply (e.g. the type of parasite the substance is targeting is not relevant in a certain species)

#: These substances have a high priority because:

[1]Products were found online, but no FDA approvals or EU registrations were found

[2]FDA approvals or EU registrations were found, but use in the animal species is unlikely

Annex 12 Prioritisation of insecticides (group B1b)

Table A12.1 *Prioritisation of insecticides in bovine*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for beef**	**FIDIN (>150 kg)**	**Conclusion**	**Withdrawal period (>5 days)**	**Conclusion**	**Bovine**
Cyfluthrin	N	Y	N	N	N	N	N	N	Y	N	N	→	→	Low
Cyhalothrin	N	Y	N	N	N	N	N	(Y)	N	N	N	→	→	Low3
Cypermethrin/α-cypermethin	N	Y	N	N	N	N	N	(Y)	Y	N	Y	10-28d	Y	Medium
Deltamethrin	N	Y	N	N	N	N	N	(Y)	Y	N	Y	17d	Y	Medium
Diazinon	N	Y	N	N	N	N	N	N	N	N	N	→	→	Low
Flumethrin	N	Y	Y	N	U	Y	→	→	→	→	→	5d	Y	Medium
Permethrin	N	Y	N	N	N	N	N	(Y)	Y	Y	Y	3d	N	Low[3]
Phoxim	N	Y	N	N	N	N	N	N	Y	N	N	→	→	Low

(Y): detected, but levels found are unclear

[3]Low priority, but levels >LOD were detected in the animal species/product

Table A12.2 *Prioritisation of insecticides in milk*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for milk producing animals**	**FIDIN (>150 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Milk**
Cyfluthrin	N	Y	N	N	N	N	N	N	Y	N	N	→	→	Low
Cyhalothrin	N	Y	N	N	N	N	N	(Y)	N	N	N	→	→	Low[3]
Cypermethrin/α-cypermethin	N	Y	N	N	N	N	N	(Y)	Y	N	Y	(0d)	N	Low[3]
Deltamethrin	N	Y	N	N	N	N	N	(Y)	Y	Y	Y	0d	N	Low[3]
Diazinon	N	Y	N	N	N	N	N	N	N	N	N	→	→	Low
Flumethrin	N	Y	N	N	U	U	Y[B]	U	Y	N	U	→	→	Start survey*2
Permethrin	N	Y	N	N	N	N	N	(Y)	Y	Y	Y	0d	N	Low[3]
Phoxim	N	N	→	→	→	→	N	N	N	N	N	→	→	Low

(Y): detected, but levels found are unclear

[3]Low priority, but levels >LOD were detected in the animal species/product

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A12.3 *Prioritisation of insecticides in porcine*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for pig**	**FIDIN (>150 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Porcine**
Cyfluthrin	N	N	→	→	→	→	N	N	N	N	N	→	→	Low
Cyhalothrin	N	N	→	→	→	→	N	(Y)	N	N	N	→	→	Low[3]
Cypermethrin/α-cypermethin	N	N	→	→	→	→	N	Y	N	N	N	→	→	Low[3]
Deltamethrin	N	N	→	→	→	→	N	N	N	N	N	→	→	Low
Diazinon	N	Y	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Flumethrin	N	N	→	→	→	→	Y[B]	U	N	N	U	→	→	Start survey*2
Permethrin	N	N	→	→	→	→	Y	→	→	→	→	→	→	Medium
Phoxim	N	Y	N	N	N	N	N	N	Y	N	N	→	→	Low

(Y): detected, but levels found are unclear

[3]Low priority, but levels >LOD were detected in the animal species/product

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A12.4 *Prioritisation of insecticides in horse*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?						Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for horse**	**FIDIN (>65 kg)**	**Controlled on forbidden substances list**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Horse**
Cyfluthrin	N	N	→	→	→	→	N	N	N	N	N	N	→	→	Low
Cyhalothrin	N	N	→	→	→	→	N	N	N	N	N	N	→	→	Low
Cypermethrin/α-cypermethin	N	N	→	→	→	→	N	N	N	N	N	N	→	→	Low
Deltamethrin	N	N	→	→	→	→	N	N	N	N	N	N	→	→	Low
Diazinon	N	N	→	→	→	→	N	N	N	N	N	N	→	→	Low
Flumethrin	N	N	→	→	→	→	Y[B]	U	N	N	N	U	→	→	Start survey*2
Permethrin	N	N	→	→	→	→	Y	→	→	→	→	→	→	→	Medium
Phoxim	N	Y	N	N	N	N	N	N	Y	N	N	N	→	→	Low

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A12.5 *Prioritisation of insecticides in goat*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for goat**	**FIDIN (>65 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Goat**
Cyfluthrin	N	Y	N	N	U	U	U	U	N	N	U	→	→	Start survey
Cyhalothrin	N	N	→	→	→	→	U	U	N	N	U	→	→	Start survey
Cypermethrin/α-cypermethin	N	Y	N	N	U	U	U	U	N	N	U	→	→	Start survey
Deltamethrin	N	Y	N	N	U	U	U	U	N	N	U	→	→	Start survey
Diazinon	N	Y	(Y)	N	U	U	Y[P,S]	U	N	N	U	→	→	Start survey*2
Flumethrin	N	N	→	→	→	→	Y[B]	U	N	N	U	→	→	Start survey*2
Permethrin	N	N	→	→	→	→	U	U	N	N	U	→	→	Start survey
Phoxim	N	Y	N	N	U	U	U	U	Y	N	U	→	→	Start survey

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A12.6 *Prioritisation of insecticides in sheep*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for sheep**	**FIDIN (>65 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Sheep**
Cyfluthrin	N	N	→	→	→	→	N	N	N	N	N	→	→	Low
Cyhalothrin	N	N	→	→	→	→	N	(Y)	N	N	N	→	→	Low[3]
Cypermethrin/α-cypermethin	N	Y	N	N	N	N	N	N	Y	N	N	→	→	Low
Deltamethrin	N	Y	N	N	N	N	N	N	Y	N	N	→	→	Low
Diazinon	N	Y	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Flumethrin	N	Y	N	N	U	U	Y[B]	U	N	N	U	→	→	Start survey*2
Permethrin	N	N	→	→	→	→	Y	N	N	N	Y	Cascade	Y	Medium
Phoxim	N	Y	N	N	N	N	N	N	Y	N	N	→	→	Low

(Y): detected, but levels found are unclear

[3]Low priority, but levels >LOD were detected in the animal species/product

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A12.7 *Prioritisation of insecticides in poultry*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for poultry**	**FIDIN (>150 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Poultry**
Cyfluthrin	N	N	→	→	→	→	N	N	N	N	N	→	→	Low
Cyhalothrin	N	N	→	→	→	→	N	N	N	N	N	→	→	Low
Cypermethrin/α-cypermethin	N	N	→	→	→	→	N	(Y)	N	N	N	→	→	Low[3]
Deltamethrin	N	N	→	→	→	→	N	N	N	N	N	→	→	Low
Diazinon	N	N	→	→	→	→	N	(Y)	N	N	N	→	→	Low[3]
Flumethrin	N	N	→	→	→	→	Y	→	→	→	→	→	→	Medium
Permethrin	N	N	→	→	→	→	N	(Y)	N	N	N	→	→	Low[3]
Phoxim	N	Y	N	N	N	N	N	N	Y	Y	Y	25d	Y	Medium[4]

(Y): detected, but levels found are unclear

[3]Low priority, but levels >LOD were detected in the animal species/product

[4]Medium priority, but primarily used in laying hens

Table A12.8 *Prioritisation of insecticides in eggs*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for egg**	**FIDIN (>150 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Egg**
Cyfluthrin	N	N	→	→	→	→	N	N	N	N	N	→	→	Low
Cyhalothrin	N	N	→	→	→	→	N	N	N	N	N	→	→	Low
Cypermethrin/α-cypermethin	N	N	→	→	→	→	N	(Y)	N	N	N	→	→	Low3
Deltamethrin	N	N	→	→	→	→	N	N	N	N	N	→	→	Low
Diazinon	N	N	→	→	→	→	N	(Y)	N	N	N	→	→	Low3
Flumethrin	N	N	→	→	→	→	Y[Poultry]	U	N	N	U	→	→	Start survey*2
Permethrin	N	N	→	→	→	→	N	(Y)	N	N	N	→	→	Low3
Phoxim	N	Y	N	N	N	N	N	N	Y	Y	Y	12h	N	Low

(Y): detected, but levels found are unclear

[3]Low priority, but levels >LOD were detected in the animal species/product

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Annex 13 Prioritisation of authorised sedatives (group B1c)

Table A13.1 *Prioritisation of authorised sedatives in bovine*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for beef**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Bovine**
Azaperon (marker azaperol)	-	N	→	→	→	→	Y	→	→	→	→	→	Y	Medium
Brotizolam	-	N***	→	→	→	→	U	U	Y	N	U	U	→	Start Survey
Butorphanol	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Carazolol	-	Y	N	N	N	N	N	N	N	N	N	→	→	Low
Detomidine	-	Y	N	N	U	U	U	U	Y	N	U	→	→	Start Survey
Isofluran	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Ketamine	-	N***	→	→	→	→	U	U	Y	Y	U	→	→	Start Survey*1
Levomethadone	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Lidocaine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Mepivacaine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Procaine	-	N***	→	→	→	→	U	U	Y	Y	U	→	→	Start Survey*1
Romifidine	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Thiopental	-	N***	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Xylazine	-	N***	→	→	→	→	Y	→	→	→	→	→	Y	Medium

N***: No MRL necessary for this animal species/product, but present in Regulation (EU) 37/2010

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A13.2 *Prioritisation of authorised sedatives in milk*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for milk producing animals**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Milk**
Azaperon (marker azaperol)	-	N	→	→	→	→	Y[b]	U	N	N	U	→	→	Start Survey*2
Brotizolam	-	N	→	→	→	→	U	U	Y	N	U	→	→	Start Survey
Butorphanol	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Carazolol	-	Y	N	N	U	U	U	U	N	N	U	→	→	Start Survey
Detomidine	-	N	→	→	→	→	U	U	Y	N	U	→	→	Start Survey
Isofluran	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Ketamine	-	N***	→	→	→	→	U	U	Y	Y	U	→	→	Start Survey*1
Levomethadone	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Lidocaine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Mepivacaine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Procaine	-	N***	→	→	→	→	U	U	Y	Y	U	→	→	Start Survey*1
Romifidine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Thiopental	-	N***	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Xylazine	-	N	→	→	→	→	Y[b]	U	Y	Y	U	→	→	Start Survey*2

N***: No MRL necessary for this animal species/product, but present in Regulation (EU) 37/2010

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A13.3 *Prioritisation of authorised sedatives in porcine*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for pig**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Porcine**
Azaperone (marker azaperol)	-	Y	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Brotizolam	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Butorphanol	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Carazolol	-	Y	N	N	N	N	N	N	Y	N	N	→	→	Low
Detomidine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Isofluran	-	Y	N	N	U	U	U	U	Y	N	U	→	→	Start Survey
Ketamine	-	N***	→	→	→	→	U	U	Y	Y	U	→	→	Start Survey*1
Levomethadone	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Lidocaine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Mepivacaine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Procaine	-	N***	→	→	→	→	U	U	Y	Y	U	→	→	Start Survey*1
Romifidine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Thiopental	-	N***	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Xylazine	-	N	→	→	→	→	Y	→	→	→	Y	→	→	Medium

N***: No MRL necessary for this animal species/product, but present in Regulation (EU) 37/2010

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A13.4 *Prioritisation of authorised sedatives in horse*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for horse**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Horse**
Azaperon (marker azaperol)	-	N	→	→	→	→	N	N <10	N	N	U	→	→	Start Survey
Brotizolam	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Butorphanol	-	N***	→	→	→	→	U	U	Y	N	U	→	→	Start Survey
Carazolol	-	N	→	→	→	→	N	N <10	N	N	U	→	→	Start Survey
Detomidine	-	Y	N	N	U	U	U	U	Y	N	U	→	→	Start Survey
Isofluran	-	Y	N	N	U	U	U	U	Y	Y	U	→	→	Start Survey*1
Ketamine	-	N***	→	→	→	→	U	U	Y	Y	U	→	→	Start Survey*1
Levomethadone	-	N***	→	→	→	→	U	U	Y	N	U	→	→	Start Survey
Lidocaine	-	N***	→	→	→	→	U	U	Y	N	U	→	→	Start Survey
Mepivacaine	-	N***	→	→	→	→	U	U	Y	N	U	→	→	Start Survey
Procaine	-	N***	→	→	→	→	U	U	Y	Y	U	→	→	Start Survey*1
Romifidine	-	N***	→	→	→	→	U	U	Y	N	U	→	→	Start Survey
Thiopental	-	N***	→	→	→	→	U	U	Y	N	U	→	→	Start Survey
Xylazine	-	N***	→	→	→	→	N	N <10	Y	Y	U	→	→	Start Survey*1

N***: No MRL necessary for this animal species/product, but present in Regulation (EU) 37/2010

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A13.5 *Prioritisation of authorised sedatives in goat*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for goat**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Goat**
Azaperon (marker azaperol)	-	N	→	→	→	→	N	N <10	N	N	U	→	→	Start Survey
Brotizolam	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Butorphanol	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Carazolol	-	N	→	→	→	→	N	N <10	N	N	U	→	→	Start Survey
Detomidine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Isofluran	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Ketamine	-	N***	→	→	→	→	U	U	Y	Y	U	→	→	Start Survey*1
Levomethadone	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Lidocaine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Mepivacaine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Procaine	-	N***	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Romifidine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Thiopental	-	N***	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Xylazine	-	N	→	→	→	→	N	N <10	N	N	U	→	→	Start Survey

N***: No MRL necessary for this animal species/product, but present in Regulation (EU) 37/2010

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A13.6 *Prioritisation of authorised sedatives in sheep*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for sheep**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Sheep**
Azaperon (marker azaperol)	-	N	→	→	→	→	N	N <10	N	N	U	→	→	Start Survey
Brotizolam	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Butorphanol	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Carazolol	-	N	→	→	→	→	N	N <10	N	N	U	→	→	Start Survey
Detomidine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Isofluran	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Ketamine	-	N***	→	→	→	→	U	U	Y	Y	U	→	→	Start Survey*1
Levomethadone	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Lidocaine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Mepivacaine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Procaine	-	N***	→	→	→	→	U	U	Y	Y	U	→	→	Start Survey*1
Romifidine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Thiopental	-	N***	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Xylazine	-	N	→	→	→	→	N	N <10	N	N	U	→	→	Start Survey

N***: No MRL necessary for this animal species/product, but present in Regulation (EU) 37/2010

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A13.7 *Prioritisation of authorised sedatives in poultry*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for poultry**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Poultry**
Azaperon (marker azaperol)	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Brotizolam	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Butorphanol	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Carazolol	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Detomidine	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Isofluran	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Ketamine	-	N***	→	→	→	→	Y	→	→	→	Y	→	→	Medium
Levomethadone	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Lidocaine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Mepivacaine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Procaine	-	N***	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Romifidine	-	N	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Thiopental	-	N***	→	→	→	→	U	U	N	N	U	→	→	Start Survey
Xylazine	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey

N***: No MRL necessary for this animal species/product, but present in Regulation (EU) 37/2010

Table A13.8 *Prioritisation of authorised sedatives in eggs*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for egg**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Egg**
Azaperon (marker azaperol)	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Brotizolam	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Butorphanol	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Carazolol	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Detomidine	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Isofluran	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Ketamine	-	N***	→	→	→	→	Y [t]	U	N	N	U	U	→	Start Survey*2
Levomethadone	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Lidocaine	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Mepivacaine	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Procaine	-	N***	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Romifidine	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Thiopental	-	N***	→	→	→	→	U	U	N	N	U	U	→	Start Survey
Xylazine	-	N	→	→	→	→	U	U	N	N	U	U	→	Start Survey

N***: No MRL necessary for this animal species/product, but present in Regulation (EU) 37/2010

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Annex 14 Prioritisation of other authorised substances (group B1e)

Table A14.1 *Prioritisation of other authorised substances in bovine*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for beef**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Bovine**
Authorised beta-agonists														
Cabergoline	N	Y*	N	N	U	U	U	U	N	N	U	→	→	Start survey
Clenbuterol	N	Y**	Y	N	Y	Y	→	→	→	→	→	→	→	Medium
Authorised steroids														
Altrenogest	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
betamethasone	N	Y	Y	N	Y	Y	-->	-->	-->	-->	-->	-->	-->	Medium
chlormadinone	N	Y	N	N	N	N	N	N	Y	N	N	-->	-->	Low
dexamethasone	N	Y	Y	Y	Y	Y	-->	-->	-->	-->	-->	-->	-->	Medium
Flugestone acetate	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
Methylprednisolone	N	Y	Y	N	N	Y	-->	-->	-->	-->	-->	-->	-->	Medium
Norgestomet	N	Y	N	N	U	U	U	U	N	N	U	-->	-->	Start survey
Prednisolone	N	Y	Y	N	N	Y	-->	-->	-->	-->	-->	-->	-->	Medium

Table A14.2 *Prioritisation of other authorised substances in milk*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for beef**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Milk**
Authorised beta-agonists														
Cabergoline	N	Y*	N	N	U	U	U	U	N	N	U	→	→	Start survey
Clenbuterol	N	Y**	N	N	U	U	Y[B]	U	Y	N	U	Y	Y	Start survey*2
Authorised steroids														
Altrenogest	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
betamethasone	N	Y	N	N	U	U	Y[B]	U	N	N	U	-->	-->	Start survey*2
chlormadinone	N	Y	N	N	U	U	U	U	Y	N	U	-->	-->	Start survey
dexamethasone	N	Y	N	N	U	U	Y[B,S]	U	Y	Y	U	-->	-->	Start survey*2
Flugestone acetate	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
Methylprednisolone	N	N	-->	-->	-->	-->	Y[B]	U	N	N	U	-->	-->	Start survey*2
Norgestomet	N	Y	N	N	U	U	U	U	N	N	U	-->	-->	Start survey
Prednisolone	N	Y	N	N	U	U	Y[B,G]	U	Y	N	U	-->	-->	Start survey*2

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A14.3 *Prioritisation of other authorised substances in porcine*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for beef**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Porcine**
Authorised beta-agonists														
Cabergoline	N	N*	→	→	→	→	U	U	N	N	U	→	→	Start survey[3]
Clenbuterol	N	N**	→	→	→	→	Y	→	→	→	Y	→	Y	Medium
Authorised steroids														
Altrenogest	N	Y	N	N	U	U	U	U	Y	Y	U	-->	-->	Start survey*1
betamethasone	N	Y	N	N	N	N	N	N	N	N	N	-->	-->	Low
chlormadinone	N	N	-->	-->	-->	-->	N	N	N	N	N	-->	-->	Low
dexamethasone	N	Y	Y	N	N	Y	-->	-->	-->	-->	-->	-->	-->	Medium
Flugestone acetate	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
Methylprednisolone	N	N	-->	-->	-->	-->	N	N	N	N	N	-->	-->	Low
Norgestomet	N	Y	N	N	U	U	U	U	N	N	U	-->	-->	Start survey
Prednisolone	N	N	-->	-->	-->	-->	N	N	N	N	N	-->	-->	Low

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

[3]Unlikely since primarily used in milk or egg producing species

Table A14.4 *Prioritisation of other authorised substances in horse*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for beef**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Horse**
Authorised beta-agonists														
Cabergoline	N	N*	→	→	→	→	U	U	N	N	U	→	→	Start survey[3]
Clenbuterol	N	Y**	Y	Y	U	Y	→	→	→	→	→	→	→	Medium
Authorised steroids														
Altrenogest	N	Y	N	N	U	U	U	U	Y	N	U	-->	-->	Start survey
betamethasone	N	N	-->	-->	-->	-->	Y[B]	U	N	N	U	-->	-->	Start survey*2
chlormadinone	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
dexamethasone	N	Y	N	N	U	U	Y[B]	U	Y	N	U	-->	-->	Start survey*2
Flugestone acetate	N	Y	N	N	U	U	U	U	N	N	U	-->	-->	Start survey
Methylprednisolone	N	N	-->	-->	-->	-->	Y[B]	U	Y	N	U	-->	-->	Start survey*2
Norgestomet	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
Prednisolone	N	N	-->	-->	-->	-->	Y	-->	-->	-->	-->	-->	-->	Medium

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

[3]Unlikely since primarily used in milk or egg producing species

Table A14.5 *Prioritisation of other authorised substances in goat*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for beef**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Goat**
Authorised beta-agonists														
Cabergoline	N	N*	→	→	→	→	U	U	N	N	U	→	→	Start survey
Clenbuterol	N	N**	→	→	→	→	Y[B,P]	U	N	N	U	→	→	Start survey*2
Authorised steroids														
Altrenogest	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
betamethasone	N	N	-->	-->	-->	-->	Y[B]	U	N	N	U	-->	-->	Start survey*2
chlormadinone	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
dexamethasone	N	Y	N	N	U	U	Y[sheep]	U	Y	N	U	-->	-->	Start survey*2
Flugestone acetate	N	Y	N	N	U	U	U	U	Y	N	U	-->	-->	Start survey
Methylprednisolone	N	N	-->	-->	-->	-->	Y[B]	U	N	N	U	-->	-->	Start survey*2
Norgestomet	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
Prednisolone	N	N	-->	-->	-->	-->	Y	-->	-->	-->	-->	-->	-->	Medium

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A14.6 *Prioritisation of other authorised substances in sheep*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for beef**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Sheep**
Authorised beta-agonists														
Cabergoline	N	N*	→	→	→	→	U	U	N	N	U	→	→	Start survey
Clenbuterol	N	N**	→	→	→	→	$Y^{B,P}$	N	N	N	U	→	→	Start survey*2
Authorised steroids														
Altrenogest	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
betamethasone	N	N	-->	-->	-->	-->	Y^{B}	U	N	N	U	-->	-->	Start survey*2
chlormadinone	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
dexamethasone	N	N	-->	-->	-->	-->	Y	-->	-->	-->	-->	-->	-->	Medium
Flugestone acetate	N	Y	N	N	U	U	U	U	Y	N	U	-->	-->	Start survey
Methylprednisolone	N	N	-->	-->	-->	-->	Y^{B}	U	N	N	U	-->	-->	Start survey*2
Norgestomet	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
Prednisolone	N	N	-->	-->	-->	-->	$Y^{G,H}$	U, N<10	N	N	U	-->	-->	Start survey*2

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A14.7 *Prioritisation of other authorised substances in poultry*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for beef**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Poultry**
Authorised beta-agonists														
Cabergoline	N	N*	→	→	→	→	U	U	N	N	U	→	→	Start survey
Clenbuterol	N	N**	→	→	→	→	Y	→	→	→	→	→	Y	Medium
Authorised steroids														
Altrenogest	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey[4]
betamethasone	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
chlormadinone	N	N	-->	-->	-->	-->	U	N	N	N	U	-->	-->	Start survey
dexamethasone	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
Flugestone acetate	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey[4]
Methylprednisolone	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
Norgestomet	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey[4]
Prednisolone	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey

[4]These substances are used for oestrus synchronization, the use in poultry and egg is unlikely

Table A14.8 *Prioritisation of other authorised substances in eggs*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for beef**	**FIDIN (>10 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Egg**
Authorised beta-agonists														
Cabergoline	N	N*	→	→	→	→	U	U	N	N	U	→	→	Start survey
Clenbuterol	N	N**	→	→	→	→	Y[poultry]	U	N	N	U	→	→	Start survey*[2]
Authorised steroids														
Altrenogest	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey[4]
betamethasone	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
chlormadinone	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
dexamethasone	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
Flugestone acetate	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey[4]
Methylprednisolone	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey
Norgestomet	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey[4]
Prednisolone	N	N	-->	-->	-->	-->	U	U	N	N	U	-->	-->	Start survey

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

[4]These substances are used for oestrus synchronization, the use in poultry and egg is unlikely

Annex 15 Prioritisation of authorised coccidiostats (group B2)

Table A15.1 *Prioritisation of authorised coccidiostats in bovine*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for beef**	**FIDIN (>150 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Bovine**
Amprolium	N	N*	N	N	N	N	N	N	N	N	N	→	→	Low
Clazuril	N	N**	N	N	N	N	N	N	N	N	N	→	→	Low
Decoquinate	N	N***	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Diclazuril	N	N****	N	N	N	N	N	N	Y	N	N	N	N	Low
Halofuginon	N	Y	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Imidocarb	N	Y	N	N	U	U	U	U	Y	N	U	→	→	Start survey
Lasalocid	N	Y	(Y)	N	N	N	N	N	N	N	N	→	→	Low
Maduramicin	N	Y*****	N	N	N	N	N	N	N	N	N	→	→	Low
Monensin	N	Y	N	N	N	N	N	N	Y	Y	Y	N	N	Low
Narasin	N	Y*****	N	N	N	N	N	N	N	N	N	→	→	Low
Nicarbazin	N	Y*****	N	N	N	N	N	(N)	N	N	N	→	→	Low
Robenidine	N	Y*****	N	N	N	N	N	N	N	N	N	→	→	Low
Salinomycin	N	Y*****	N	N	N	N	N	N	N	N	N	→	→	Low
Semduramicin	N	Y*****	N	N	N	N	N	N	N	N	N	→	→	Low
Toltrazuril	N	Y	N	N	N	N	N	N	Y	Y	Y	Y	Y	Medium

N*: present in Regulation (EU) 37/2010, MRL definition limited to no MRL required for oral use in poultry

N**: present in Regulation (EU) 37/2010, MRL definition limited to use in pigeons

N***: No MRL required for bovine & ovine, for oral use only, not for use in animals from which milk is produced for human consumption

N****: No MRL required for all ruminants & porcine for oral use only

Y*****: MRL related to unavoidable carry-over of feed additive

Table A15.2 *Prioritisation of authorised coccidiostats in milk*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for milk producing animals**	**FIDIN (>150 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Milk**
Amprolium	N	N*	U	N	U	U	U	U	N	N	U	→	→	Start survey
Clazuril	N	N**	U	N	U	U	U	U	N	N	U	→	→	Start survey
Decoquinate	N	N***	U	N	U	U	Y[B]	U	N	N	U	→	→	Start survey*2
Diclazuril	N	N****	U	N	U	U	U	U	N	N	U	→	→	Start survey
Halofuginon	N	Y*****	U	N	U	U	Y[B]	U	N	N	U	→	→	Start survey*2
Imidocarb	N	Y	U	N	U	U	U	U	Y	N	U	(21d)	Y	Start survey
Lasalocid	N	Y*****	U	N	U	U	U	U	N	N	U	→	→	Start survey
Maduramicin	N	Y*****	U	N	U	U	U	U	N	N	U	→	→	Start survey
Monensin	N	Y	U	N	U	U	U	U	Y	Y	U	(0d)	→	Start survey*1
Narasin	N	Y*****	U	N	U	U	U	U	N	N	U	→	→	Start survey
Nicarbazin	N	Y*****	U	N	U	U	U	U	N	N	U	→	→	Start survey
Robenidine	N	N?	U	N	U	U	U	U	N	N	U	→	→	Start survey
Salinomycin	N	N?	U	N	U	U	U	U	N	N	U	→	→	Start survey
Semduramicin	N	Y*****	U	N	U	U	U	U	N	N	U	→	→	Start survey
Toltrazuril	N	N	U	N	U	U	U	U	N	Y	U	Cascade	Y	Start survey*1

N*: present in Regulation (EU) 37/2010, MRL definition limited to no MRL required for oral use in poultry

N**: present in Regulation (EU) 37/2010, MRL definition limited to use in pigeons

N***: No MRL required for bovine & ovine, for oral use only, not for use in animals from which milk is produced for human consumption

N****: No MRL required for all ruminants & porcine for oral use only

Y*****: MRL related to unavoidable carry-over of feed additive

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A15.3 *Prioritisation of authorised coccidiostats in porcine*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for pig**	**FIDIN (>150 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Porcine**
Amprolium	N	N*	N	N	U	U	U	U	N	N	U	→	→	Start survey
Clazuril	N	N**	N	N	U	U	U	U	N	N	U	→	→	Start survey
Decoquinate	N	Y***	N	N	U	U	Y[B]	U	N	N	U	→	→	Start survey*2
Diclazuril	N	N****	N	N	U	U	U	U	N	N	U	→	→	Start survey
Halofuginon	N	Y***	N	N	U	U	Y[B]	U	N	N	U	→	→	Start survey*2
Imidocarb	N	N	N	N	U	U	U	U	N	N	U	→	→	Start survey
Lasalocid	N	Y***	Y	N	U	Y	→	→	→	→	→	→	→	Medium
Maduramicin	N	Y***	Y	N	U	Y	→	→	→	→	→	→	→	Medium
Monensin	N	Y***	Y	N	U	Y	→	→	→	→	→	→	→	Medium
Narasin	N	Y***	N	N	U	U	U	U	N	N	U	→	→	Start survey
Nicarbazin	N	Y***	N	N	U	U	U	U	N	N	U	→	→	Start survey
Robenidine	N	Y***	N	N	U	U	U	U	N	N	U	→	→	Start survey
Salinomycin	N	Y***	N	N	U	U	U	U	N	N	U	→	→	Start survey
Semduramicin	N	Y***	N	N	U	U	U	U	N	N	U	→	→	Start survey
Toltrazuril	N	Y	Y	N	Y	Y	→	→	→	→	→	→	→	Medium

N*: present in Regulation (EU) 37/2010, MRL definition limited to no MRL required for oral use in poultry

N**: present in Regulation (EU) 37/2010, MRL definition limited to use in pigeons

Y***: MRL related to unavoidable carry-over of feed additive

N****: No MRL required for all ruminants & porcine for oral use only

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A15.4 *Prioritisation of authorised coccidiostats in horse*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?						Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for horse**	**FIDIN (>65 kg)**	**Controlled on forbidden substances list**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Horse**
Amprolium	N	N*	N	N	U	U	U	U	N	N	N	U	→	→	Start survey
Clazuril	N	N**	N	N	U	U	U	U	N	N	N	U	→	→	Start survey
Decoquinate	N	Y***	N	N	U	U	Y^{B}	U	N	N	N	U	→	→	Start survey*2
Diclazuril	N	Y***	Y	Y	U	Y	U	→	→	→	→	→	→	→	Medium
Halofuginon	N	Y***	N	N	U	U	Y^{B}	U	N	N	N	U	→	→	Start survey*2
Imidocarb	N	N	N	N	U	U	U	U	N	N	N	U	→	→	Start survey
Lasalocid	N	Y***	N	N	U	U	Y^{P}	U	N	N	N	U	→	→	Start survey*2,3
Maduramicin	N	Y***	N	N	U	U	Y^{P}	U	N	N	N	U	→	→	Start survey*2,3
Monensin	N	Y***	(Y)	N	U	U	$Y^{P,G,S}$	U	N	N	N	U	→	→	Start survey*2,3
Narasin	N	Y***	N	N	U	U	U	U	N	N	N	U	→	→	Start survey[3]
Nicarbazin	N	Y***	N	N	U	U	U	U	N	N	N	U	→	→	Start survey
Robenidine	N	Y***	N	N	U	U	U	U	N	N	N	U	→	→	Start survey
Salinomycin	N	Y***	Y	N	U	Y	→	→	→	→	→	→	→	→	Medium[3]
Semduramicin	N	Y***	N	N	U	U	U	U	N	N	N	U	→	→	Start survey[3]
Toltrazuril	N	Y	N	N	U	U	Y^{P}	U	N	N	N	U	→	→	Start survey*2

N*: present in Regulation (EU) 37/2010, MRL definition limited to no MRL required for oral use in poultry

N**: present in Regulation (EU) 37/2010, MRL definition limited to use in pigeons

Y***: MRL related to unavoidable carry-over of feed additive

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

[3]Substance is toxic for horses, so deliberate use is unlikely

Table A15.5 *Prioritisation of authorised coccidiostats in goat*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for goat**	**FIDIN (>65 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Goat**
Amprolium	N	N*	N	N	U	U	U	U	N	N	U	→	→	Start survey
Clazuril	N	N**	N	N	U	U	U	U	N	N	U	→	→	Start survey
Decoquinate	N	Y***	(Y)	N	U	U	Y[B]	U	N	N	U	→	→	Start survey*2
Diclazuril	N	N****	N	N	U	U	U	U	N	N	U	→	→	Start survey
Halofuginon	N	Y***	N	N	U	U	Y[B]	U	N	N	U	→	→	Start survey*2
Imidocarb	N	N	N	N	U	U	U	U	N	N	U	→	→	Start survey
Lasalocid	N	Y***	N	N	U	U	Y[P]	U	N	N	U	→	→	Start survey*2
Maduramicin	N	Y***	N	N	U	U	Y[P]	U	N	N	U	→	→	Start survey*2
Monensin	N	Y***	Y	N	U	Y	→	→	→	→	→	→	→	Medium
Narasin	N	Y***	N	N	U	U	U	U	N	N	U	→	→	Start survey
Nicarbazin	N	Y***	N	N	U	U	U	U	N	N	U	→	→	Start survey
Robenidine	N	Y***	(Y)	N	U	U	U	U	N	N	U	→	→	Start survey
Salinomycin	N	Y***	(Y)	N	U	U	U	U	N	N	U	→	→	Start survey
Semduramicin	N	Y***	(Y)	N	U	U	U	U	N	N	U	→	→	Start survey
Toltrazuril	N	Y	N	N	U	U	Y[P]	U	N	N	U	→	→	Start survey*2

N*: present in Regulation (EU) 37/2010, MRL definition limited to no MRL required for oral use in poultry

N**: present in Regulation (EU) 37/2010, MRL definition limited to use in pigeons

Y***: MRL related to unavoidable carry-over of feed additive

N****: No MRL required for all ruminants & porcine for oral use only

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A15.6 *Prioritisation of authorised coccidiostats in sheep*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for sheep**	**FIDIN (>65 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Sheep**
Amprolium	N	N*	N	N	U	U	U	U	N	N	U	→	→	Start survey
Clazuril	N	N**	N	N	U	U	U	U	N	N	U	→	→	Start survey
Decoquinate	N	N***	(Y)	N	U	U	Y[B]	U	Y	N	U	→	→	Start survey*2
Diclazuril	N	N****	N	N	U	U	U	U	Y	N	U	→	→	Start survey
Halofuginon	N	Y*****	N	N	U	U	Y[B]	U	N	N	U	→	→	Start survey*2
Imidocarb	N	Y	N	N	U	U	U	U	N	N	U	→	→	Start survey
Lasalocid	N	Y*****	N	N	U	U	Y[P]	U	N	N	U	→	→	Start survey*2
Maduramicin	N	Y*****	N	N	U	U	Y[P]	U	N	N	U	→	→	Start survey*2
Monensin	N	Y*****	Y	N	U	Y	→	→	→	→	→	→	→	Medium
Narasin	N	Y*****	N	N	U	U	U	U	N	N	U	→	→	Start survey
Nicarbazin	N	Y*****	N	N	U	U	U	U	N	N	U	→	→	Start survey
Robenidine	N	Y*****	(Y)	N	U	U	U	U	N	N	U	→	→	Start survey
Salinomycin	N	Y*****	(Y)	N	U	U	U	U	N	N	U	→	→	Start survey
Semduramicin	N	Y*****	(Y)	N	U	U	U	U	N	N	U	→	→	Start survey
Toltrazuril	N	Y	N	N	U	U	Y[P]	U	Y	Y	Y	Y	Y	Start survey*2

N*: present in Regulation (EU) 37/2010, MRL definition limited to no MRL required for oral use in poultry

N**: present in Regulation (EU) 37/2010, MRL definition limited to use in pigeons

N***: No MRL required for bovine & ovine, for oral use only, not for use in animals from which milk is produced for human consumption

N****: No MRL required for all ruminants & porcine for oral use only

Y*****: MRL related to unavoidable carry-over of feed additive

*A substance that is currently not included in the NRCP, but there are indications that the substance may be found because:

[1]Sales data are above the threshold

[2]Non-compliances were found in related species

Table A15.7 *Prioritisation of authorised coccidiostats in poultry*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for poultry**	**Feed additive or FIDIN (>150 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Poultry**
Amprolium	N	N*	N	N	N	N	N	N	Y	Y	Y	0d	N	Low[4]
Clazuril	N	N**	N	N	N	N	N	N	N	N	N	→	→	Low
Decoquinate	N	Y***	Y	Y	Y	Y	→	→	→	→	→	→	→	Medium
Diclazuril	N	Y	(Y)	N	N	N	N	N	N/Y	U	Y	0d	→	Low
Halofuginon	N		Y	N	Y	Y	→	→	→	→	→	→	→	Medium
Imidocarb	N	N	N	N	U	U	U	U	N	N	U	→	→	Start survey
Lasalocid	N	Y	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Maduramicin	N	Y***	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Monensin	N	Y***	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Narasin	N	Y***	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Nicarbazin	N	Y***	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Robenidine	N	Y***	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Salinomycin	N	Y***	Y	Y	N	Y	→	→	→	→	→	→	→	Medium
Semduramicin	N		(Y)	N	N	N	N	N	N	U	N	→	→	Low
Toltrazuril	N	Y	Y	Y	Y	Y	→	→	→	→	→	→	→	Medium

N*: present in Regulation (EU) 37/2010, MRL definition limited to no MRL required for oral use in poultry

N**: present in Regulation (EU) 37/2010, MRL definition limited to use in pigeons

Y***: MRL related to unavoidable carry-over of feed additive

[4]Substance is used substantially, but only since 2019 -> not yet reflected in monitoring data

Table A15.8 *Prioritisation of authorised coccidiostats in eggs*

	Q1: is this an essential antimicrobial for humans?	Q2: Have MRLs been set for this substance in this animal species?	Q3: were any non-compliant residue data of the substance found in the last five years?				Q4: Is the substance regularly used in this animal species?					Q5: Do drugs with this active substance have a long withdrawal period?		Conclusion priority
Substances			**EFSA 2013-2018**	**RASFF 2013 - 2019**	**NP data 2013-2018**	**Conclusion**	**NC results**	**Monitored and found in NP**	**Registration EU for egg**	**Feed additive or FIDIN (>150 kg)**	**Conclusion**	**Withdrawal period**	**Conclusion**	**Egg**
Amprolium	N	N*	N	N	N	N	N	N	Y	Y	Y	N	N	Low[4]
Clazuril	N	N**	N	N	N	N	N	N	N	N	N	→	→	Low
Decoquinate	N	Y***	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Diclazuril	N	Y***	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Halofuginon	N	Y***	N	N	N	N	N	Y	N	N	N	→	→	Low
Imidocarb	N	N	N	N	U	U	U	U	N	N	U	→	→	Start survey
Lasalocid	N	Y	Y	Y	N	Y	→	→	→	→	→	→	→	Medium
Maduramicin	N	Y***	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Monensin	N	N?	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Narasin	N	Y***	Y	Y	Y	Y	→	→	→	→	→	→	→	Medium
Nicarbazin	N	Y***	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Robenidine	N	Y***	Y	N	N	Y	→	→	→	→	→	→	→	Medium
Salinomycin	N	Y***	Y	Y	N	Y	→	→	→	→	→	→	→	Medium
Semduramicin	N	Y***	(Y)	N	N	N	N	(Y)	N	N	N	→	→	Low
Toltrazuril	N	N	Y	Y	N	Y	→	→	→	→	→	→	→	Medium

N*: present in Regulation (EU) 37/2010, MRL definition limited to no MRL required for oral use in poultry

N**: present in Regulation (EU) 37/2010, MRL definition limited to use in pigeons

Y***: MRL related to unavoidable carry-over of feed additive

[4]Substance is used substantially, but only since 2019 -> not yet reflected in monitoring data

Wageningen Food Safety Research
P.O. Box 230
6700 AE Wageningen
The Netherlands
T +31 (0)317 48 02 56
www.wur.eu/food-safety-research

WFSR report 2020.023

To explore the potential of nature to improve the quality of life

Wageningen Food Safety Research
P.O. Box 230
6700 AE Wageningen
The Netherlands
T +31 (0)317 48 02 56
www.wur.eu/food-safety-research

WFSR report 2020.023

The mission of Wageningen University & Research is "To explore the potential of nature to improve the quality of life". Under the banner Wageningen University & Research, Wageningen University and the specialised research institutes of the Wageningen Research Foundation have joined forces in contributing to finding solutions to important questions in the domain of healthy food and living environment. With its roughly 30 branches, 6,500 employees (5,500 fte) and 12,500 students, Wageningen University & Research is one of the leading organisations in its domain. The unique Wageningen approach lies in its integrated approach to issues and the collaboration between different disciplines.