CODEX ALIMENTARIUS COMMISSION E

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World Health Organization

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Agenda Item 5 **CX/AF 12/6/5 Add.3**

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JOINT FAO/WHO FOOD STANDARDS PROGRAMME

***AD-HOC* INTERGOVERNMENTAL CODEX TASK FORCE ON ANIMAL FEEDING**

Sixth Session
Berne, Switzerland, 20-24 February 2012

PROPOSED DRAFT PRIORITISED LIST OF HAZARDS IN FEED

(Revised version)

Comments at Step 3 of:

Argentina, Canada, Chile, Iran, Japan, New Zealand, Norway, United States of America, FAO, IDF, IFIF and OIE

ARGENTINA

Argentina would like to congratulate SWITZERLAND for the work performed within the framework of the working group for this document and appreciates the opportunity given to provide the following comments.

GENERAL COMMENTS

Argentina would like to highlight some major aspects related to the wording and contents herein.

Firstly, we would like to draw attention to the MANDATE given to this "list", and the format that it is expected to have. CODEX ALIMENTARIUS is not able to establish a POTENTIAL list of hazards in a Codex text based on assumptions, but it should prepare documents about hazards scientifically assessed by any FAO/WHO Expert Group.

Given that until now there have been few risk assessments performed by FAO/WHO Expert Groups in terms of feed; it would be inadequate if the list to be prepared includes hazards based on "assumptions", which will therefor themselves result in an infringement of CODEX principles.

On this basis, Argentina considers that it is essential to define the purpose to be given to this document. If the list is intended to guide the future prioritisation work of the Codex Technical Committees, it should be in the format of a WORKING DOCUMENT for further discussion within each Technical Committee on the basis of their specific competences. If, however, the intention is to prepare a guidance list for GOVERNMENTS, then only those hazards that, to date, have been scientifically assessed by the CODEX in relation to feed and their impact on the safety of food for human consumption should be included.

As for the writing of the document, Argentina considers that a large part of it has been copied from the contents of the risk assessment document, which is considered inappropriate. Basically, we consider that the body should focus on 3, or more, criteria to prioritise the hazards, presented as a core, but with a more in-depth approach than what is currently been proposed, along with a table with the potential feed hazards to be considered, with their proven impact on public health.

Argentina considers this document relevant in terms of its approach to each of the criteria used to prioritise the hazards, in close connection with intrinsic risk assessment factors. In this sense, we consider that while "relevance to human health" and "impact on international trade" may be factors with quantitative relevance for the countries; the "degree of probability of existence" (i.e., that a hazard present in a feed will be consumed by an animal and generate a safety risk in food for human consumption that poses a threat to human health) requires study of multiple factors that influence the Transmission Coefficient; these should be specifically described in this work.

SPECIFIC COMMENTS

PARAGRAPH 1

As directly regards the Mandate granted to the Special Group in this matter, this document is not considered as a Directive but as a List of Hazards that includes Criteria to be used for prioritisation. Moreover, some mistakes in the Spanish translation have been detected, which should be corrected, such as:

*1. ~~This guidelines~~ **This working document** provides ~~general principles and guidance~~ **a hazard list to be considered for discussion within the framework of the prioritisation activities of the corresponding Codex Committees** ~~for prioritisation of~~ **together with the criteria to perform such prioritisation**. **This list considers** the hazards in feed ~~and the treatment of the hazards in feeds~~ for food-producing animals which may be transferred to edible products, and thereby pose a risk **to food safety and thus to human health** ~~human health~~.*

PARAGRAPHS 2 to 14

Argentina considers that these paragraphs are not relevant within the framework of the current List and Criteria to be prepared, so their ELIMINATION is suggested.

PARAGRAPHS 16 and 17

It is considered that these texts refer to "relevance to human health" in GENERAL and not in specific terms, so we suggest that this heading be moved to the beginning of PARAGRAPH 22.

PARAGRAPHS 18 to 21

Argentina considers that PARAGRAPHS 18 to 21 reiterate the information provided in the Risk Assessment document, and they DO NOT make any contribution to the specific heading of "Relevance to Human Health". Regarding this, Argentina suggests deleting these paragraphs.

PARAGRAPH 22

As in the Risk Assessment text for Governments, we suggest considering the inclusion of other issues that could be associated with the Transmission Coefficient, so, among other issues to be considered for inclusion, we suggest including:

*22. To establish potential relevance to human health, it is essential to have some estimate of the transfer of hazard in feed to edible product. ~~Factors~~ **Questions** which will influence the transfer rate include:*

- The physical-chemical characteristics of the hazard, e.g. pKa/pKb, log Kow, water solubility, and chemical and thermal stability.

Kinetics of the hazard in the food-producing animal, including systemic absorption, metabolism (including generation of hazardous metabolites), distribution and accumulation potential of hazard in body compartments, and extent of transfer of hazard into edible products.

- Production Practices (farming, animal, industrial) and feed handling; and

- Biology of micro-organism involved.

PARAGRAPH 23

Argentina suggests that references to the sources of information on transfer coefficients be broadened, suggesting the following editorial change:

*23. Information on transfer rates for a given hazard may be available in ~~national~~ **national scientific and/or relevant international publications.**~~or Codex standards such as the General Standard for Contaminants and Toxins in Food and Feed (CODEX STAN 193-1995) or in international reports and monographs from bodies including JECFA, JMPR, JEMRA, WHO IPCS, WHO CICAD, and/or in the scientific literature.~~*

PARAGRAPH 24

In the SPANISH text, the word "index" should be replaced with "coefficient".

PARAGRAPH 28

References to other Codex texts might be deleted without altering the interpretation of the text, as we understand that the first one has already been referred to, and the second one is not related to the paragraph text. This would be consistent with the correction made to the text on Risk Assessment:

*28. Consideration should be given to the source of feed ingredients and the potential for introduction of hazards during their manufacture. Many feed ingredients are produced as by-products from other production processes, e.g., distillers' grains from the production of biofuel, etc. ~~In accordance with the Code Of Practice on Good Animal Feeding (CAC/RCP 54-2004),~~ **F**eed ingredients should be obtained from safe sources and be subject to a risk analysis where the ingredients are derived from processes or technologies not hitherto evaluated from a food safety point of view. ~~The procedure used should be consistent with the Codex Alimentarius Commission Procedural Manual: Working Principles for Risk Analysis for Application in the Framework of the Codex Alimentarius.~~*

PARAGRAPHS 30 AND 31

Argentina considers that the cited references are inappropriate since they do not offer guidance on the "Extent of Occurrence" of specific hazards in feed but on their potential occurrence. In this sense, and with a discussion list for the Codex Committees in mind, these references are unnecessary and should be deleted.

POTENTIAL HAZARDS IN FEED

Argentina would like to draw attention to the list of hazards mentioned in this List, which includes a set of items that are not referenced in the document "Feed Impact on Food Safety", drafted by the Joint FAO/WHO Expert Meeting in 2007 and which could be considered to be a base document.

BIOLOGICAL HAZARDS

Argentina considers that a paragraph should be included with general comments on the biological hazards in feed that, once their transmission to foods of animal origin has been verified, may pose a risk to the consumer.

Regarding this, Argentina suggests the following text:

XX. When considering biological hazards, it is essential to consider the scientific basis that proves the causality between a food safety problem and a micro-organism, originating from the contamination of feed, and its proven transmission to the edible tissue.

PARAGRAPH 37

Argentina considers that the **references** to the Codex documents are unnecessary and suggests their elimination.

PARAGRAPH 38

Argentina suggests the elimination of this paragraph, as it has no relation with the reference to specific hazards to be considered but rather with management tools.

ENDOPARASITES

PARAGRAPH 40

Argentina considers that the cited hazards should be analysed in detail, specifically the consideration of Trichinella or Cysticercus as hazards "transmitted" from feed. In this sense, it is important to analyse each hazard to be included in this point within the framework of the corresponding scientific bases indicating parasite hazards in feed as the direct cause of a food safety risk.

VIRUSES

PARAGRAPH 41

Argentina would like to put forward its concern about the consideration of VIRUSES as hazards present in food, given that these are not cited in the above mentioned reference document, and besides, that the causality of transmission of this type of hazard to food through feed is not clear. Argentina specifically requests that this point be subject to further debate.

MYCOTOXINS

PARAGRAPH 49

Argentina suggests deleting the reference to sampling methods, which is irrelevant to the framework of this List. Moreover, we suggest including this sentence at the end of PARAGRAPH 48. The text would be as follows:

*48. Mycotoxins are produced by fungi which catabolise carbohydrates, and are therefore found most commonly in cereals (especially wheat, sorghum and maize), but also in oilseed meals and cakes, and forage. Mycotoxin contamination in feed **may be** not homogeneous.*

PARAGRAPH 52

Argentina considers that the references cited do not correspond to a list of hazards and, if necessary, the specific considerations deemed relevant should be clearly detailed. Therefore, Argentina suggests deleting the whole paragraph.

PARAGRAPH 57

Argentina considers that the references should be deleted, leaving only the essential text.

57. ~~The Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003) refers to hazards in human food originating from tropical reef fish that accumulate ciguatera toxin. Reference is also made to FAO guidance on monitoring, sampling and analysis methods, and proposed maximum levels of marine toxins in shellfish (Marine biotoxins- FAO Food and Nutrition Paper 80 (2004); http://www.fao.org/docrep/007/y5486e/y5486e00.htm).~~ Excretion

in human milk after maternal poisoning has been reported, so transfer from feed to edible products, specifically milk, is a possibility.

PARAGRAPHS 62 to 69

Argentina considers that these paragraphs should be separated by the heading "CHEMICAL RESIDUES". On the other hand, the references in PARAGRAPHS 63, 64 and 65 are considered inappropriate for a "list of potential hazards", so we suggest deleting them.

PARAGRAPHS 66 and 67

Elimination of references to international texts is suggested.

PARAGRAPHS 71, 72 AND FIGURE 2

Argentina considers that the procedure put forward in paragraphs 71 and 72 is not relevant to the proposed document; therefore its deletion is suggested. On the other hand, we believe that FIGURE 2 does not provide any relevant information for the interpretation of the Tables that follow. In addition, Argentina believes that the Criteria are analysed AS A WHOLE and SIMULTANEOUSLY, and not one after the other. Considering this, we think Figure 2 should be eliminated.

TABLES 1 AND 2

Argentina considers that their contents should be discussed once the PURPOSE and SCOPE OF APPLICATION of this document have been clearly defined.

CANADA

General Comments

Canada thanks the Secretariat for the revision to the draft document. We support the Task Force in its development of Codex guidance that is informed by existing Codex texts and procedures. We invite the Task Force to carefully reflect on how best this guidance can be complementary to and supportive of existing Codex texts and work programs, with the objective to enhance the consideration of hazards in feed that can translate to food safety issues of concerns.

One key consideration that needs discussion relates to the title of the document, and whether it accurately reflects the intent of this guidance. The title indicates that hazards in feeds have been prioritized into a list. However, this is not consistent with the Introduction section. We also note that further clarification may be necessary as to whom this guidance is addressed.

Specific Comments

Section – Introduction

Paragraphs 1 and 2

As noted under our General comments, the intent of this text needs to be consistent with the Title of the document. Paragraph 1 indicates that “The guideline provides general principles and guidance for prioritization of hazards in feeds by governments…”. If indeed this is the intent, it is not consistent with the title of the document, which should be revised accordingly.

Further Paragraph 2 indicates that “The guideline should facilitate prioritisation of hazards in feed based upon local conditions,…”. In order for this guidance to meet these stated objectives, this text should provide a useful framework for governments to use in the identification and prioritisation of hazards (e.g. set of relevant criteria), and allow for the necessary flexibility to accommodate national conditions. It is also important this text should enable international comparability of prioritization of hazards, and hence support the relevance of this Codex guidance.

Finally, the Task Force will need to reflect carefully on the most appropriate approach with regard to “a prioritized list of hazards in feed”. Given the above considerations, it would be important to confirm the priority given to the development of criteria to guide the identification and prioritization of hazards, with possibly a “listing of hazards” as illustrative guidance.

Section – Potential feed hazards: Biological hazards:

Paragraph 35

We suggest the following modifications:

Salmonella is a worldwide human health concern. Salmonella in infected food-producing animals can be transmitted to humans via food **products from these animals**. Contaminated feed can represent a route of exposure of food-producing animals to Salmonella. However, the correlation between contaminated feed and infection of livestock by a given Salmonella strain and the contamination of edible products from these animals needs to be established on a case-by-case

basis. Adequate strain typing is necessary, because rates of transmission to edible products and human pathogenicity are typically strain-specific; only a limited number of serotypes **predominate in** ~~adversely affect~~ human health infections.

Justification: All Salmonella is capable of causing illness under some circumstances, especially in immunocompromised humans.

Paragraph 37

Our preference is that this paragraph be removed. Should the consensus be to retain it, Canada suggests the following modifications to improve its clarity.

Other: Spore-forming bacteria belonging to aerobic or facultatively anaerobic Bacillus spp., anaerobic Clostridium spp. and the non-sporogenic Listeria monocytogenes **and Escherichia coli O157:H7** are **among other** human health hazards **which may be present in feed.** Spores ingested in silage are unaffected by passage through the gastrointestinal tract of the ruminants and are excreted in the faeces; they may be transferred to milk mainly via faecal contamination of the udder or milking equipment. Spores present in raw milk may survive during processing and subsequently germinate and grow in the milk, so producing a potential risk to human health. **Non-sporogenic bacteria, such as L. monocytogenes and E. coli O157:H7 may colonize animals and contaminate their animal products. The risk of contamination from these microorganisms can be minimised by adhering to good hygienic practice**; reference is made to the Code of Hygienic Practice for Milk and Milk Products (CAC/RCP 57-2004) and the Code of Hygienic Practice for Meat (CAC/RCP 58-2005).

Justification: As the likelihood of feed being the mechanism of transmission of the hazard is low, it is recommended to remove it from this prioritised list.

Paragraph 41

Our preference is to delete this paragraph. Should the consensus be to retain it, Canada suggests the following modifications to improve clarity.

Some viruses, such as hepatitis E, are pathogenic to both food-producing animals and humans (Hepatitis E. WHO Fact sheet N°280. Revised January 2005; http://www.who.int/mediacentre/factsheets/fs280/en/). Viral contamination of feed ~~is possible via~~ **results from contact with** body fluids of infected animals. The most likely route of contamination of edible products of food-producing animals is ~~probably external, by~~ contamination with virus-containing faeces **from infected animals**. The **human health** risk of such contamination **of foods** can be minimized by respecting good food hygiene practice, **including heating food before consumption**.

Justification: As the likelihood of feed being the mechanism of transmission of the hazard is low, it is recommended to remove it from this prioritised list.

Paragraph 48

We suggest the following modifications to improve clarity:

Mycotoxins are **toxic metabolites** produced by fungi ~~which catabolise carbohydrates, and are therefore~~ **on crops during growth in the field and in storage**. **In feeds, mycotoxins** are found most commonly in cereals (especially wheat, sorghum and maize), but also in oilseed meals and cakes, and silage.

Paragraph 53

Our preference is to delete this paragraph. However, should the consensus be to retain it, Canada suggests the following modifications to improve clarity.

Toxins produced by bacteria such as Clostridium botulinum, C. tetani and C. perfringens, Vibrio cholerae, Staphylococcus aureus, Yersinia enterocolitica, and Shigella dysenteriae are acutely toxic to food producing animals when ingested with feed **and would likely result in clinical illness which would preclude slaughter of the affected animals for food**. Transfer of toxin to edible products is therefore unlikely.

Justification: As the likelihood of feed being the mechanism of transmission of the hazard is low, it is recommended to remove it from this prioritised list.

Paragraph 66

We suggest the following modification to the first sentence to improve clarity:

"Non-intentional exposure **of food-producing animals** to pesticide residues in crops may result from the **unapproved use of a pesticide,** the uptake of residues present as a result of ~~treating~~ a previous crop **treatment** with pesticides or from spray-drift, volatilisation, and/or runoff **during a pesticide application**…."

Paragraph 67

Canada would like to suggest the replacement of the OIE reference by in this paragraph the **Code of Practice on Good Animal Feeding, *CAC/RCP 54-2004,***

Justification: The Code of Practice on Good Animal Feeding document more specifically addresses precautions to be taken during the production of medicated feed.

Paragraph 68

Canada suggests the following addition:

"Unapproved use of drugs, **including improper adherence to appropriate withdrawal times in food-producing animals,** may result…. "

Justification: Improper adherence to withdrawal times is an important consideration in the risk characterization of a hazard from the use of a veterinary drug.

Paragraphs 58 to 69

Canada suggests that the organization of the Organic Chemicals section be reviewed to clearly separate classes of chemicals discussed (dioxins, furans, PCBS, and other persistent organic pollutants; pesticides; veterinary drugs; and intentional adulterants). These sections could be organized in terms of expected magnitude of exposure depending on the contaminant source from direct inclusion to cross-contamination within feedmills to indirect presence in feed ingredients such as distillers grain byproducts and rendering.

Justification: This would make the recommendations clearer and easier to access.

TABLE 1- Factors affecting occurrence of hazards in feed and feed ingredients

There is inconsistent use of terminology. For example, dioxins are specifically referred to in Plant origin, Fat/oil, but are captured under the heading organic chemicals in the section Aquatic animals origin: fish and other marine animals. There are a number of organic chemical contaminants in feeds of plant origin and it is known that dioxins in feeds of aquatic animal origin have historically been a hazard of concern.

CHILE

a) General comments

This document should incorporate any guideline which provides guidance to allow the determination of which listed hazards have a higher potential risk, in order to be able to prioritize according to the Proposed Draft objective, which can be based on bibliographic evidence.

For example, in the case of forages, only *Salmonella spp.* and *Brucella spp.* are mentioned as microbiological hazards in the document "Animal Feed Impact on Food Safety" FAO/WHO, 2007. Moreover, the European Union Regulation, as well as other EFSA documents, indicate the microbiological analysis of *Salmonella spp.* as an important pathogen.

It would be convenient to have more bibliographic background indicating that bacterial pathogens mentioned in this document are actually important in feed, given the specificity they have for human health compared with other food directly taken by humans.

b) Specific Comments

Comment 1.

INTRODUCTION

Paragraph 4. This guideline should be read in conjunction with the:

- ***General Guidelines on Sampling (CAC/GL 50-2004).***

Rationale: It is considered necessary to refer to these Guidelines, and therefore it is suggested to add them in Paragraph 4.

Comment 2.

DEFINITIONS.

Paragraph 9. We request a clarification of the difference between the "Cross-contamination" and "Transfer" definitions.

Comment 3.

Extent of occurrence. We propose to incorporate in this paragraph the reference to the General Guidelines on Sampling, as follows:

Paragraph 25. It should be ensured that sampling protocols for feed and edible products use scientifically recognized principles and procedures in accordance with the *Codex Alimentarius Commission Procedural Manual: Principles for the Establishment or Selection of Codex Sampling Procedures* ***and General Guidelines on Sampling (CAC/GL 50-2004).*** The sampling plan for hazard identification should take into consideration possible inhomogeneous distribution of the hazard, based on all relevant factors.

Comment 4.

Organic chemicals

~~Paragraph 69. The possibility of intentional adulteration of feed should also be considered, for example by melamine or cyanuric acid.~~

Rationale: Intentionally added agents must not be included in the document and, if such were to be the case here, the purpose should be included for every other hazard mentioned in the Proposed Draft.

Comment 5.

POTENTIAL FEED HAZARDS Proposal for this paragraph is to replace the term strain with serovariety:

Paragraph 35. *Salmonella* is a worldwide human health concern. Salmonella in infected food-producing animals can be transmitted to humans via food. Contaminated feed can represent a route of exposure of food-producing animals to Salmonella. However, the correlation between contaminated feed and infection of livestock by a given Salmonella strain and the contamination of edible products from these animals needs to be established on a case-by-case basis. Adequate strain typing is necessary, because rates of transmission to edible products and human pathogenicity are typically ~~strain~~ **serovariety** specific; only a limited number of serotypes adversely affect human health.

Rationale:

Two or more *Salmonella spp.* bacterial strains from a food (feed) can belong to the same serovariety, and therefore by indicating "serovariety" instead of "strain", this clarifies that the serovariety or serotype is that which can affect humans in a different form.

Comment 6.

We propose that this paragraph only refer to *Bacillus spp.* and *Clostridium spp.*, developing an independent paragraph for *Listeria monocytogenes*:

Paragraph 37. Spore-forming bacteria belonging to aerobic or facultatively anaerobic *Bacillus* ***spp.*** **and** anaerobic *Clostridium* ***spp***. ~~and the non-sporogenic Listeria monocytogenes~~ are human health hazards. Spores ingested in silage are unaffected by passage through the gastrointestinal tract of the ruminants and are excreted in the faeces; they may be transferred to milk mainly via faecal contamination of the udder or milking equipment. Spores present in raw milk may survive during processing and subsequently germinate and grow in the milk, so producing a potential risk to human health; reference is made to the *Code of Hygienic Practice for Milk and Milk Products* (CAC/RCP 57-2004) and the *Code of Hygienic Practice for Meat* (CAC/RCP 58-2005).

XX. Listeria monocytogenes ……

Rationale:

Listeria monocytogenes is added to a paragraph which refers to spore-forming bacteria, which can lead to confusion since *L. monocytogenes* is not a spore-forming bacterium.

Although *L. monocytogenes* is mentioned in the text as non-spore forming, we propose to incorporate it in another point to avoid interpreting that its hazard is an environmentally-resistant spore-formation.

Comment 7.

PROCEDURE

Figure 2. Factors and criteria to consider when prioritising hazards in feed. We propose to change the term "plants" for "vegetable substances", as it is a more accurate term and to standardize the terms used throughout the document:

Feed

- Source: Derived from ~~plant~~ **vegetable substance**, animal or other (see Table 1)

Comment 8.

TABLE 1: FACTORS AFFECTING OCCURRENCE OF HAZARDS IN FEED INGREDIENTS

Feed or feed ingredient

Plant origin

Vegetable feed or ~~**feed**~~ **feed ingredient.**

Comment 9.

TABLE 1: FACTORS AFFECTING OCCURRENCE OF HAZARDS IN FEED INGREDIENTS

Feed or feed ingredient

Under terrestrial animal origin there should be an item for "Feed or animal feed ingredients", taking into account slaughter by-products, such as meals of various origin used as ingredients of feed.

Comment 10.

TABLE 1: FACTORS AFFECTING OCCURRENCE OF HAZARDS IN FEED INGREDIENTS

Feed or feed ingredient

Fermentation by-products

We suggest specifying the bibliographic reference which indicates that "fermentation by-products" contain biological (bacteria) hazards potentially hazardous in feed.

Comment 11.

TABLE 2: FACTORS AFFECTING OCCURRENCE OF HAZARDS IN EDIBLE PRODUCTS

Rationale: We suggest correcting it in the Spanish version.

IRAN

General comments:

Iran supports the document

Comments on paragraphs:

Paragraph 7

Physical hazards is outside the scope of this standard. It is expressed in para. 17 but for emphasizing, we suggest to insert it in para. 7 of the scope :

7-Agents such as physical hazards which may,.....

Paragraph 9-contaminants

Storage is missing but it is expressed in other parts such as para. 27. We suggest to add **storage** to definition of contaminant: ,.....preparation, treatment, **storage**,.....

Paragraph 27, line 3

Add **Planting** : ....during **planting**, growth,.....

Paragraph 66

Impact of de-worming methods in small animals (such as passing sheep through de-worming pools) should be considered. It may cause to unintentional absorbance of pesticides into the animal body.

Figure2

Import , should be considered. We suggest to change export **to export/import .**

Table 1,Row2; Sub row 2

According to para. 3, correct the term ,**'carry over**" to ,**'transfer**"

Table 2, Raw' Bacteria'

Use ,**'plant'** instead of ,**'vegetable**" .because ,'plant' is more general.

Table 2, Raw ,'lead'

Add: **Using sewage for crop irrigation.**

JAPAN

General Comments

Japan appreciates Switzerland's efforts in preparing the revised version of draft and opportunity to comment on this draft. We are supportive of this well-drafted document and welcome the addition of detailed references in the section on criteria for prioritizing hazard.

We would like to provide specific comments as follows:

Specific Comments

p 5

DEFINITIONS

Contaminant

Japan notices that the definition of “Contaminant” is currently under discussion in the electronic working group on Risk Analysis Principles of the CCCF and it would be considered in the forthcoming CCCF. We suggest that the definition should be consistent with the result of the discussion in the CCCF.

Figure 2:

(Proposal)

For both Feed and Edible product, “/import” should be added after “Trade: volume of production and export” to read "Trade: volume of production and export**/import**".

(Rationale)

The volume of import of feeds and edible products is also an important factor for importing countries when prioritizing hazards in feed,

Table 2:

(Proposal)

For "Veterinary drug, pesticide, processing aid residues", add "**fish**" in edible products to read "Meat, **fish**, milk, eggs, honey".

(Rationale)

To ensure consistency with paragraph 68.

NEW ZEALAND

General Comments

New Zealand agrees with the general purpose and intent of the document. New Zealand takes particular note of two important statements in the in the introductory paragraphs.

As we see it the main purpose of the document is to provide general guidance on principles and procedures for prioritisation of hazards in feed. We note and support the listing of the major hazards of known importance from a human health perspective. However, the guidelines make it clear that prioritisation of hazards for risk management will vary according to conditions of animal feeding and animal production at the national level. Thus the title is misleading and New Zealand would suggest a revision to reflect the actual content of the draft guidelines.

Specific Comments

We propose that the title of the document be revised as follows:

Proposed draft guidance for identification and prioritisation of hazards in feed ~~Proposed Draft Prioritised List of Hazards in Feed~~

Rationale: For the reasons explained in our general comments. The change to the title would more accurately capture the nature and purpose of the document

Para 15

Paragraph 15 states that” The proposed criteria for identifying relevant hazards in feed are:

relevance to human health,

extent of occurrence in feed and food, and

potential impact on international trade.

These are broader considerations than just "criteria for *identifying* relevant hazards" and imply a risk profiling process. New Zealand would accordingly suggest a change to a more general opening sentence for para 15 as follows:

~~The proposed criteria for identifying relevant hazards in feed are~~: **Considerations that are relevant to prioritising hazards in feed for risk management are:**

We are also of the view that the above sentence could also be used as the heading for this section of the document.

Rationale: See explanation above

Paragraph 32

"Impact on international trade" does not provide clear guidance and warrants further discussion. The first two bullets describe inputs to an exposure characterisation for a particular consumer population i.e. part of a risk profiling issue. The inference from the last bullet is that managing risks transmitted via feed may impact international trade but does not describe how or why. The Task Force should provide more explanation on this issue.

Para 35

New Zealand suggests inserting the following words at the beginning of the paragraph before the word Salmonella.

Salmonella and other mesophilic enteric pathogens: Salmonella…….

Rationale: To broaden the focus to include other pathogens that occupy the same niche in the environment and animals and which are increasingly being recognized as pathogens of high human health concern, e.g. shiga toxin producing E.coli

Figure 2

Figure 2 "Factors and criteria to consider when prioritising hazards in feed" should also reflect above comments. The assumption implicit in the draft guideline is that prioritisation of hazards for subsequent risk management action requires some sort of risk profiling process as a "Preliminary Risk Management" step (refer paragraph 12). This risk profile would include (perhaps qualitative) consideration of the likely level of human exposure ("hazard, feed and edible product" as in Figure 2) under specified feeding conditions at the national level ("extent of occurrence in feed and edible products") and the likely human health impact on the consumer population of interest at that level of exposure ("relevance to human health"). Different trade patterns may impact on the level of exposure.

Figure 2 does not currently reflect this. New Zealand therefore suggests a different title for figure 2 that reflects the text in paragraph 12. We suggest amending title for Figure 2 as follows:

~~Factors and criteria to consider when prioritising hazards in feed~~ **Risk profiling of hazards in feed as a prioritisation tool**

In addition to changing the title we suggest redrawing of the diagram to reflect a practical risk profiling process. Inclusion / positioning of "Impact on international trade" would be dependent on the suggested review of Paragraph 32

Rationale: for reasons explained above.

NORWAY

We appreciate this opportunity to comment upon the two proposed drafts. We would like to thank Switzerland, and congratulate the working group for the good work on both the revised drafts.

Norway is of the opinion that a whole food chain approach (from farm/fiord to fork) is of great importance.

The Guidelines on application of risk assessment for feed provides a framework for governments to address the risks to human health associated with the presence in animal feed. The guidelines as presented in the revised draft document are improved. The revised document is more clear and consistent compared to the first version of the guidelines.

Regarding the revised *Prioritized list of hazards*, this version is also an improved document compared to the first proposed draft. This document appears more consistent and simplified.

We think that the two proposed draft documents will form a good basis for the discussions at the meeting in Berne in February.

UNITED STATES OF AMERICA

GENERAL COMMENTS:

The United States appreciates the efforts of the Secretariat for developing this draft document and the opportunity to provide comments. The United States still believes that this Prioritized List best serves as a reference paper. The end product of this document should not be a "prioritized list," which in practice cannot be maintained and updated by this time-limited Task Force. Rather the document best serves as guidance for each country/region to help them determine their criteria for identifying and prioritizing a relevant hazard list. This provided guidance and example list should be used as a tool in that process.

SPECIFIC COMMENTS:

The United States proposes the following revisions for the Task Force Committee's consideration:

Background

Paragraph 2: Please add to first sentence as follows:

> … prioritization of hazards in feed based upon **regional or local scientific data, ~~local conditions~~** considering the potential impact, …

Rationale: This suggested change is more precise than the previous draft description.

DEFINITIONS

> **Feed Additive: (**Micro-organism, enzymes, acidity, regulators, trace elements, vitamins, and other products **excluding veterinary drugs**….)

Rationale: Veterinary drugs are not included within the definition of feed additive. In addition, all actions related to veterinary drugs are the responsibility of the Codex Committee on Residues of Veterinary Drugs in Food.

> **Feed ingredient:** Ingredients are of plant or animal or ~~aquatic origin~~….

Rationale: This is redundant since an ingredient of aquatic origin is either a plant or animal.

SCOPE

Paragraph 6: Please consider the following change:

> This guideline is applicable to **~~all~~** hazards in feed. ~~Hazards " refers to any agent which may adversely affect human health.~~

Rationale: The current description is not necessary and inconsistent with the definition of a hazard on page 5.

PRIORITIZATION OF HAZARDS IN THE FRAMEWORK OF CODEX RISK ANALYSIS

Paragraph 10 : Please add the additional reference:

> *Guidelines for Risk Analysis of Foodborne Antimicrobial Resistance* (CAC/GL 77-2011)

Rationale: Inclusion of this citation is appropriate.

CRITERIA FOR PRIORITIZING A HAZARD

Relevance to Human Health

Paragraph 22: pkA, pKB and Kow should be defined.

Rationale: Definitions for these terms are necessary for further understanding.

Paragraph 35: Please delete the following phrase:

> ~~Only a limited number of serotypes adversely affect human health~~.

Rationale: All *Salmonella* can potentially cause disease in humans. In the alternative, the text could be re-written to state, "while a limited number of *Salmonella* serotypes cause most of the human *Salmonella* cases, all *Salmonella* can be pathogenic for humans."

POTENTIAL FEED HAZARDS

Endoparsites

Paragraph 40: Trichinella should be deleted from this paragraph

Rationale: Trichinella is not shed in feces (animal or human) and thus is not a potential contaminant of pasture and forages.

Chemical Hazards

Elements

Paragraph 45: We suggest the following revisions:

45. Radionuclides ~~**including**~~, such as caesium-134, caesium-137, strontium-90 and iodine-131, **when found above normal background levels and medical-use isotopes**, can be human hazards when present in animal feed and forages as they may transfer to edible products. They may arise from water or wind-borne environmental contamination. Transfer of radioiodine to milk, radiostrontium to bone, and radiocesium to milk, eggs and meat has been demonstrated.

Rationale**:** We suggest the above revision to address contamination above the earth's current background levels. It is also appropriate to mention the risk of contamination from discarded medical radioactive materials as these have actually led to some contamination events.

Marine Toxins

Paragraphs 56 & 57: We suggest the following revisions:

56. Certain marine plankton, primarily dinoflagellates but also a diatom, produces heat-stable toxins which can be absorbed by fish and shellfish ingesting the phytoplankton. ~~Dinoflagellates such as *Gambierdiscus toxicus* in tropical and subtropical waters produce marine toxins including heat-resistant ciguatoxin, maitotoxin, scaritoxin and palytoxin.~~ Especially small filter-feeding fish ~~which~~ can accumulate such biotoxins and ~~their predators~~ may be harvested and used to make fish meal. This is an extremely low risk hazard, based on the lack of supporting scientific data

57. The Code of Practice for Fish and Fishery Products (CAC/RCP 52-2003) refers to hazards in human food originating from ~~tropical reef~~ fish and shellfish that accumulate ~~ciguatera~~ marine **bio**toxins. Reference is also made to FAO guidance on monitoring, sampling and analysis methods, and proposed maximum levels of marine toxins in shellfish (Marine biotoxins - FAO Food and Nutrition Paper 80 (2004); http://www.fao.org/docrep/007/y5486e/y5486e00.htm). Excretion in human milk after maternal poisoning has been reported, so transfer from feed to edible products, specifically milk, is a possibility. **This is an extremely low risk hazard, based on the lack of supporting scientific data.**

Rationale: The proposed addition ensures the accuracy of this description. It may be misleading to specify only one of the multiple phytoplankton species which can create the variety of different toxins (paralytic, amnesic, neurotoxic, diarrhetic, and physteria as well as the mentioned ciguatera) that may be transmitted from marine organisms and potentially incorporated into feed. Indeed the example given is usually transmitted through predatory reef fish. These may be a pathway for direct human poisonings, but as such fish are not harvested in bulk, they are not likely to be incorporated into feed, as would say small filter feeding fish. The code of practice actually lists all the marine phytotoxins.

For marine toxins to be in a human food hazard resulting from animal feed, the fish containing the toxin would need to be made into fish meal, and the toxin would need to pass from the fish meal to the edible tissue and then the tissue consumed. It is not clear on toxins passing from fish meal to fish consuming the fish meal. This needs to be addressed and clarified.

FAO

(i) General comments

Given the current content of this document and also the difficulty of prioritizing a list of hazards at the international level, compared to the national level, that would be valuable and relevant to all, it would seem that serious consideration should be given to modifying the title of this document. We hope that the task force can give careful consideration to the type of output which would be of greatest value to member countries i.e. guidance to countries on how to prioritize hazards in feed vs a one off list of hazards.

The preliminary material in this document is the same as that in the risk assessment guidelines. The process of prioritization is something that would normally happen before a risk assessment. We would therefore like to propose that consideration be given to combining the documents into one complete resource for governments which could be called, for example, "*Guidance on hazard prioritization and the application of risk assessment to animal feed*". This could then serve as a one stop-shop for information on how to address hazards in animal feed in a scientific manner and would eliminate duplication and ensure that there is no contradiction between the two areas.

With regard to the text which is the same as in the risk assessment guidelines the same comments apply and therefore are not repeated here.

It could be useful to include here some text on the purpose that hazard prioritization serves. This could include (i) the identification of data gaps and therefore enable data collection activities to be prioritized, (ii) the determination of whether a risk assessment is required and if so which hazards should be assessed first, and (iii) an understanding of problem and whether the potential to control it already exists or not.

With regard to Figure 2 it would be useful to have some guidance on how the information collected in the prioritization process is evaluated in order to establish a list of priorities and whether different criteria should get different weighting etc. While the document identified criteria for prioritization it does not provide guidance on how this information could be used to establish a priority listing. In addition for Table 2 it is suggested to divide the second column in two, one on feed sources and the other on risk factors.

As mentioned previously radionuclides can be considered as physical hazards. The term toxic elements is not something we find easy to understand and so would like to suggest some reconsideration of the terms used.

(ii) Specific comments

Section	Para	Proposed Amendment	Rationale
Scope	7	Agents which may adversely affect animal health and welfare but ...	
Definitions	Edible product	All ~~edible~~ tissues	Since edible is in the term to be defined it does not seem appropriate that it is also in the definition
definitions	Transfer		The inclusion of transfer does not seem appropriate in the definition of transfer perhaps alternatives are movement or relocation
Criteria for prioritizing hazard	15	The proposed criteria for identifying relevant hazards in feed are - relevance to human health, - extent of occurrence in feed and food, and - potential impact on international trade in feed and food. - potential for control - transfer rate or potential for amplification	While agreeing with the criteria proposed we think that the element of how the hazards can be controlled is missing, hence the addition. Also the issue of transfer in the case of chemicals and potential for amplification in the case of microorganisms are important aspects and we believe they should be separate points rather than including under relevance to human health.
	16		Include mycotoxins
	17		Reconsider this sentence since it could refer to radionuclides. Also sentence structure is not so clear at the moment as the "which" could refer to the physical agents or animal health
	18	…may be obtained from ~~regulatory~~ surveillance samples….	This information could come from more than regulatory surveillance so suggest to broaden by removing regulatory
	21	If inadequate data are available to characterize a hazard in feed, it may be necessary to consider generating such data. The prioritization process can help identify those data gaps which are a priority. The risk manager may request action ~~at national level or at the appropriate Codex Committee.~~ by the appropriate body.	The lack of adequate data to characterize a hazard in feed is something that should be identified in the prioritization process. Rather than just go ahead and try to collect information whenever a gap is found it might be more useful to use whatever data is available to also prioritize

Section	Para	Proposed Amendment	Rationale
			the data gaps which need to be filled first. Codex is not a data collection entity so it does not seem appropriate to include here.
	22, 23 , 24	**Transfer rate or potential for amplification** 22. ~~To establish potential relevance to human health, it is essential to have some estimate of the transfer of~~ ~~hazard in feed to edible product.~~ Factors which will influence the transfer rate of elements or chemical hazards include, but are not limited to: - The physico-chemical characteristics of the hazard, e.g. pKa/pKb, log Kow, water solubility, and chemical and thermal stability. - Kinetics of the hazard in the food-producing animal, including systemic absorption, metabolism (including generation of hazardous metabolites), distribution and accumulation potential of hazard in body compartments, and extent of transfer of hazard into edible products. 23. Information on transfer rates for a given hazard may be available in national or Codex standards such as the *General Standard for Contaminants and Toxins in Food and Feed* (CODEX STAN 193-1995) or in international reports and monographs from bodies including JECFA, JMPR, JEMRA, WHO IPCS, WHO CICAD, and/or in the scientific literature. 24. In some cases, published toxicokinetic or other models that can predict the transfer rate of hazard from feed to edible products may be used or adapted.	The relevance of a hazard to human health can be determined without transfer rate. The latter is required to determine the relevance of a hazard in a particular commodity/feed. As this criteria is entitled as relevance to human health it is suggested that the transfer rate be addressed separately to avoid confusion. It is proposed to add potential for amplification as this is a critical factor for microbiological hazards.
Extent of occurrence		Extent of occurrence of hazard in feed	Suggest to make title more precise to indicate whether it is occurrence of the hazards in feed only or whether this section is also taking into account occurrence of the hazard in foods of animal origin.
	37	37. Spore-forming bacteria belonging to aerobic or facultatively anaerobic *Bacillus spp., anaerobic* *Clostridium* spp. ~~and the non-sporogenic *Listeria monocytogenes*~~ are human health hazards	Suggest to remove reference to Listeria in this para as the main focus of the paragraph is spore formers
	37 bis	The non-sporogenic *Listeria monocytogenes* is a human health hazard that can be found in fresh forage and silage. Although it can cause illness in animals , animals can also carry the bacterium without appearing ill and can contaminate foods of animal origin, such as meats and dairy products. The organism can be transferred to milk via faecal contamination of the udder or milking equipment, or directly through bacterial infection of the	Insert a new para to address *Listeria*

Section	Para	Proposed Amendment	Rationale
		mammary gland.	
	72.	Figure 2 summarizes factors, which can determine the potential occurrence of a hazard in feed and food.	Editorial changes for clarity.
	Table 2 Biological	Contaminated pasture, forages and feed (especially *Salmonella* and *Listeria*), animal and vegetable protein meals.	Listeria is very widespread and is often found in silage.
	Table 2 General	Lack or misapplication of HACCP principles, and GAP, GHP and GMP approaches in animal feed production	With regards to risk factors, this statement should be considered as an addition somewhere in this Table possibly as a footnote, or perhaps as a general note in the text.
	Table 2 Hazard - Mycotoxins	Meat (~~deepoxy~~ deoxynivalenol, zearalenol, ochratoxins), liver, milk (aflatoxin M), eggs (aflatoxins)	Aflatoxin M1 is well known to occur in milk.
	Table 2 Vet drugs	Veterinary drug, Veterinary tranquilizers, ß-agonists, pesticides, processing aid residues	These can also leave residues

IDF

The document should be entitled differently : it is not “prioritised list of hazards in feed” but rather **a** list and some criteria to carry out prioritization “; in this revised version, the title is not congruent with the introduction.

Para 9 - definition of "risk"

The statement added to the established definition does not seem to be correct and should be deleted. Risk does not refer to the probability of transfer to food. The addition makes the understanding ambiguous. Probability of transfer is related to prevalence (likelihood/frequency of occurrence), but is not the same as likelihood of adverse health effect.

> ***Risk**: A function of the probability of an adverse health effect and the severity of that effect, consequential to a hazard(s) in food (Codex Alimentarius Commission: Procedural Manual). ~~In this guideline, it may also refer to the probability that a hazard in feed eaten by a food producing animal will transfer to an edible product at a level which may cause an adverse health effect in humans.~~*

Para 18 - hazard identification

The use of the word "identification" in this paragraph is not meaningful. Use "occurrence" or "prevalence" instead.

> *18. Useful information on hazard **occurrence** ~~identification~~ may be obtained from regulatory surveillance samples and investigative work, published data from government agencies, and from international programs such as the WHO Global Environment Monitoring System (GEMS) (WHO Global Environment Monitoring System - Food Contamination Monitoring and Assessment Programme (GEMS/Food), http://www.who.int/foodsafety/chem/gems/en/), and the Joint FAO/WHO International Food Safety Authorities Network (INFOSAN) (WHO International Food Safety Authorities Network (INFOSAN);http://www.who.int/foodsafety/fs_management/infosan/en/).*

Para 34-39 – Biological hazards –bacteria

With regard to the articles on Biological hazards (Bacteria, art. 34 -39), it seems that the text focuses on specific examples and overemphasizes them (Salmonella, Brucella and clostridium spp) versus other bacterial contaminants (E coli, 0157, Mycobacterium bovis….).

Para 42 -Prions

The text refers to the code of Hygienic Practice for meat whereas it seems more appropriate that reference be made to the relevant Risk assessment guidance in the OIE Terrestrial Animal Health Code

Para 46 (and 59)

Elements (lead) **and** organic elements (PCB,…) may also occur from contaminated soil or be airborne (poly-brominated compounds); this is not clearly mentioned in the text.

Para 54 – Toxin-producing plants

As previously mentioned, we do recommend a general classification of hazards and not a description of individual risks. Providing an exhaustive but incomplete list of hazards in these "guidelines" could be misleading. It is not the role of Codex to keep up to date a list of hazards but rather to categorize them (harmonized category level of glycosides, alkaloids,...). Listing hazards could also be misleading because whilst some of those compounds might pose a risk to human health, others do not since no transfer to the edible products occur (why isn't ptaquiloside from bracken fern in the list, whilst jacoline is?)The risk for human health through feed might also be more linked to the invasiveness of the plant rather than the toxicity of the toxins it produces

54. Toxin-producing plants may occur in grasslands used for forage. Toxins can include pyrrizolidine alkaloids ~~(e.g. Jacoline from Senecio jacobaea)~~ and other alkaloids ~~(e.g. atropine, caffeine, cocaine, ephedrine, morphine, nicotine, solanine)~~, terpenes ~~(e.g. camphor, menthol, pinene)~~, ~~tetrahydrocannabinol, gossypol~~, isoflavones, and glycosides ~~(e.g. cyanogenic glycosides, digitalis).~~

Transfer of some of these toxins to edible products ~~such as milk and meat has been demonstrated~~

Para 65 – processing aids

Delete entire para. 65. Reference to processing aids under the heading "chemical hazards" is not appropriate. In the case that substances complying with the definition of "hazard" are currently used as processing aids, these substances should be listed individually by their name (or group name). Processing aids are not hazards *per se*.

Para 66 –pesticide residues

The paragraph on pesticides seems very short with regard to the wide spectrum of uses of pesticides, and the emerging risks with non-intentional exposure to hazards (pesticide residues,…) due to new practices (co-products of energy crops, use of parts of the crops for which MRL's haven't been set)

Pesticides used for post-harvest treatment (e.g. during storage of cereal grains) are those leaving more residues (compared to pesticides used on crop in field).This should be added to the para 66 or integrated after para 66.

66. Non-intentional exposure to pesticide residues in crops may result from the uptake of residues present as a result of treating a previous crop with pesticides or from spray-drift, volatilisation, and/or runoff. ***Unexpected presence of pesticide residues in feed could also result from use of new co-products of (new) energy crops or from use for feed of parts of crops for which MRL's haven't been specifically set. Draught or climatic events can also induce early harvesting of crops, resulting in unexpected amounts of residues.***

Pesticides used for post-harvest treatment (e.g. during storage of cereal grains) are those leaving more residues (compared to pesticides used on crop in field).

Para 69 - melamine

Should be listed in table 2

69. The possibility of intentional adulteration of feed should also be considered, for example by melamine or cyanuric acid.

Table 1 and 2

The term "risk factor" is used in the heading of the second column, which may be confusing. We recommend that the heading be changed into "Cause/source of occurrence"

Feed or feed ingredient	**Cause /source of occurence**	**Hazard**
Plant feed or feed ingredient	Crop and harvest (environment, field conditions, plant, species)	**Pesticide** Residues, environment chemicals, heavy metal, plant toxins, mycotoxins, radionuclides, (pathogenic bacteria)
	Manufacturing (carry-over, cross-contamination), byproducts from industrial food-production, processed feed ingredients, mixed feed	Residues of veterinary drugs, residues of feed additives and processing aids
	Treatment to eliminate toxins or for	Plant toxins or bacteria

Feed or feed ingredient	Cause /source of occurence	Hazard
	conservation (heat/acid/pressure etc.)	
	Condition of storage, transport (moisture, temperature), manufacturing (cross-contamination)	Pathogenic bacteria, mycotoxins, toxic elements**, pesticides used for post-harvest treatment**
Fat/oil s	Origin, purity, blending	Dioxins, organochlorine pesticide, **organophosphorous pesticides and pyrethroids**

IFIF

General Comments:

We believe that the end product of this document should not be a "prioritized list" which cannot be maintained, but rather it should be up to each country/region to determine their criteria for identifying and prioritizing a relevant hazard list, and to maintain that list. This Guidance and example list should be used as a tool in that process. This avoids raising the need to change the title of this document.

We would also like to emphasize the need and value of further development and use of reliable feed safety alert systems; for the identification, prioritization and risk management of hazards at the region or country level.

Finally, we recommend the further review of this document by the Task Force, with the objective of providing further practical guidance to risk assessors on how to prioritize feed hazards at the regional or national level.

Paragraph 2 We request the further clarification in the first sentence, as follows:

… prioritization of hazards in feed based upon **regional or local scientific data,** ~~local conditions~~ considering the potential impact, if any, on human health. It should also enable international comparability of prioritization of hazards in feed, thereby promoting fair practices in food trade.

Paragraph 6 The recommended deleting the following language, as it is not necessary and is inconsistent with the definition on page 5:

This guideline is applicable to ~~all~~ hazards in feed. ~~"Hazards" refers to any agent, which may adversely affect human health.~~

Paragraph 9 Please add the following recommended changes to this definition:

Processing Aid: Means any substance or material, not including apparatus or utensils, and not consumed as a food ingredient by itself, intentionally used in the processing of raw materials, foods or its ingredients, to fulfill a certain technological purpose during treatment or processing and which may result in the non-intentional but unavoidable presence of residues or derivatives in the final product **and has no function in the final product, nor any adverse effect.** (Codex *Alimentarius Commission: Procedural Manual).*

Paragraph 10 We request the addition of this additional reference to the list, as follows:

Guidelines for Risk Analysis of Foodborne Antimicrobial Resistance (CAC/GL 77-2011)

Paragraph 32 We request that this paragraph be replaced with paragraphs 16-17 from the previous version of the document, as follows. The previous paragraphs are much more explicit regarding the intent of this document as it relates to international trade and we do not feel the document was improved with the wording of the current paragraph 32:

16. Trade in primary feed ingredients and additives intended for food-producing animals is of worldwide economic importance. Animal feed is crucially important in the safety of food of animal origin. This document is intended to facilitate international comparability of feed hazard prioritization, thus promoting fair practices in international feed and food trade.

17. Trade considerations are not relevant to the assessment of hazard within a risk analysis, but may be very relevant to the management of risk and where a country needs to prioritize feed hazards and risk management actions (Working Principles for Risk Analysis for Food Safety for Application by Governments; CAC/GL 62-2007).

Paragraph 34 We request the following corrections to the reference to vegetable sources of microbial hazards:

The primary microbiological hazards in feed that transfers to edible products of food-producing animals are zoonotic microorganisms which contaminate animal and vegetable **feed** ~~protein meals~~ fed to animals. They may be introduced into feed crops, forages and water from contaminated pasture land, may be present **mainly** in animal

materials which are used for feed, and/or may be introduced to feed by cross-contamination or carry- over during processing, transport, and storage.

Paragraph 40 We propose that Trichinella should be deleted from this paragraph because it is not shed in feces (animal or human) and thus is not a potential contaminant of pasture and forages.

Paragraphs 57 We recommend the following addition to this paragraph, to clarify that this is an extremely low level risk factor, based on current scientific data:

…so transfer from feed to edible products, specifically milk, is a possibility. **While marine toxins are a possible hazard in feed ingredients, it should be noted that current scientific data would rank these potential hazards at an extremely low risk level.**

TABLE 1 (p. 16) **2nd col heading change as follows:**

Risk **F~~f~~**actor **affecting occurrence**

TABLE 2 (p. 18)

- In the 1st line on Bacteria the term protein meal needs to be replaced by **feed** (consistency with point 34.)
- The list of radionuclides needs to be revised to include the addition of Eggs **(radiocesium) and fish (radiocesium)** in the Edible Products column under this category.

TABLE 2 (p 19)

- In the row on "other alkaloids", the reference in the PDF version to endogenous plant toxins (gossypol) has to be added to the on-line version, which means that eggs should be listed in the section on edible products

OIE

(i) Specific comments

Paragraph 4.

[…]

As well as relevant sections of

- The **FAO/**OIE Guide to good Farming Practices for Animal Production Food Safety….
  the OIE *Terrestrial Animal Health Code* (http://www.oie.int/en/international-standard-setting/terrestrial-code/access-online/)
- **the OIE *Aquatic Animal Health Code* (http://www.oie.int/en/international-standard-setting/aquatic-code/access-online/)**

Rationale:

Corrected title of FAO/OIE Guide.

The OIE *Terrestrial Animal Health Code* includes relevant standards i.e. Chapter 6.1. *Control of hazards in aquatic animal feeds* and Chapter 6.9. *Responsible and prudent use of antimicrobial agents in veterinary medicine.*

The OIE *Aquatic Animal Health Code* includes relevant standards i.e. Chapter 6.1. *Control of hazards in aquatic animal feeds* and Chapter 6.3. *Responsible and prudent use of antimicrobial agents in aquatic animals.*

Paragraph 31.

- **The OIE *Aquatic Animal Health Code* (http://www.oie.int/en/international-standard-setting/aquatic-code/access-online/)**

Rationale:

Add relevant reference to the OIE *Aquatic Animal Health Code* Chapter 6.1. *Control of hazards in aquatic animal feeds.*

Paragraph 35.

- **Measures that can be applied on-farm to prevent infection with *Salmonella* in poultry are provided in the OIE *Terrestrial Animal Health Code* (Chapters 6.4. and 6.5).**

Rationale:

Add relevant reference to the OIE *Terrestrial Animal Health Code* Chapters 6.4. and 6.5., which provide measures that can be applied on-farm to prevent infection with *Salmonella* in poultry.

Paragraph 40.

- **~~Methods~~ Measures that can be applied** ~~for~~ on-farm **to** prevent~~ion of such i~~nfections **in animals** are provided in the OIE *Terrestrial Animal Health Code* **for certain OIE-listed diseases, including Trichinellosis (Chapter 8.13.) and porcine cysticercosis (under development).**

Rationale:

Add relevant reference to the OIE *Terrestrial Animal Health Code*.

Paragraph 43.

Reference is made to the Code of Hygienic Practice for Meat (CAC/RCP 58-2005), which recommends that animals should not be given feed and feed ingredients that are recognised as likely to introduce zoonotic agents (including transmissible spongiform encephalopathy agents) to the slaughter population. **Reference is made to standards in the OIE *Terrestrial Animal Health Code* Chapter 11.5. (BSE) prohibiting 'ruminant to ruminant' feeding of meat and bone meal and greaves.**

Rationale:

Add relevant reference to the OIE *Terrestrial Animal Health Code*.

Paragraph 64.

[…]

Reference is also made to ~~guidance~~ **standards** on the responsible and prudent use of antimicrobial agents in ~~veterinary medicine~~ **terrestrial and aquatic** animals **published** by the World Organi~~z~~**s**ation for Animal Health **in the** *Terrestrial Animal Health Code*, ~~volume 1, c~~**(C**hapter 6.9**.)** ~~http://www.oie.int/fileadmin/Home/eng/Health_standards/tahc/2010/en_chaptitre_1.6.9.pdf~~ **and the *Aquatic Animal Health Code* (Chapter 6.3).**

Rationale:

Amend reference to OIE *Codes* to ensure consistency throughout the document. Add relevant reference to OIE *Aquatic Animal Health Code.*

Paragraph 67.

Contamination with ~~V~~**v**eterinary drugs, feed additive**s** and processing aid ~~contamination~~ may arise during feed production. For veterinary drugs, reference is made to the ~~recommendations~~ **relevant standards in** the OIE *Terrestrial Animal Health Code* **(Chapter 6.9.) and the OIE *Aquatic Animal Health Code* (Chapter 6.3.)** ~~on precautions to be taken (flushing, sequencing, cleaning) after the production of medicated feed (OIE Terrestrial Animal Health Code; http://www.oie.int/en/international-standard-setting/terrestrial-code.access-online/)~~.

Rationale:

Reword the first sentence for clarity.

Reword the second sentence to make it consistent with references elsewhere in the document. Delete text (~~on precautions to be taken (flushing, sequencing, cleaning) after the production of medicated feed~~) as this level of detail is inconsistent with the rest of the document and the OIE *Codes*.