CODEX ALIMENTARIUS COMMISSION

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World Health Organization

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Agenda Item 20 **CX/CF 19/13/18**

JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON CONTAMINANTS IN FOODS

13th Session
Yogyakarta, Indonesia, 29 April – 3 May 2019

DISCUSSION PAPER ON A FORWARD WORKPLAN FOR THE CODEX COMMITTEE ON CONTAMINANTS IN FOODS

(Prepared by the Host Country, JECFA and the Codex secretariats with assistance of the EU)

Background

At CCCF11, the Committee agreed to consider a forward work plan to manage (prioritize) its overall work in order to address increasing requests for new work from Codex members in reasonable time (REP 17/CF, para. 126).

At CCCF12, the Codex Secretariat underlined the importance for CCCF to operate strategically by prioritizing items within its workload, and explained that CCCF might benefit from applying an approach that looks at the overall workload of CCCF, in order to keep a balance between ongoing work and proposals for new work and to strategize the agenda for future meetings. It was not intended to leave out work, but to prioritize work so that all work had the same opportunity for discussion and completion with a reasonable timeframe (REP 18/CF, para. 150-151).

The Representative of WHO proposed that there might be real value in longer term forward planning, by systematically identifying areas for food contamination of concern for public health and with trade implications, e.g. starting with key staple foods and known contamination problems. This would allow delegates to work within their countries on information and data gathering well in advance before topics come on the agenda of CCCF (REP 18/CF, para. 153).

CCCF12 agreed that a further discussion paper would be prepared by the Codex, JECFA and the Host Country Secretariats with assistance of EU. The paper would focus on whether CCCF covered the main staple foods moving in international trade and the related presence of contaminants being of public health concern (REP 18/CF, para. 154).

The current discussion paper was drafted by the Host Country, JECFA and the Codex secretariats with assistance of the EU.

Approach for the discussion paper.

The aim of the current paper is to identify areas of work that CCCF could prioritize for future meetings. The focus has been on reduction of health risks resulting from contamination of food. The importance of the identified commodities in trade will be identified in a later stage.

The proposed Forward workplan consists of four parts:

1- Identification of key staple food - contaminant combinations that CCCF did not yet consider (Appendix A).

2- Review of existing CCCF MLs and COPs that may need revision (Appendix B)

3- Evaluation of implementation of CCCF COPs - proposed STDF research project (Appendix C)

4- Possible other future topics for CCCF (Appendix D)

Recommendations

CCCF13 is invited to consider the recommendations under each of the four parts in the appendices.

Appendix A – Identification of key staple food - contaminant combinations.

Introduction

One important driver for the development of a forward plan for CCCF was to systematically identify areas for food contamination of concern for public health and with trade implications, e.g. starting with key staple foods and known contamination problems. Staple foods are chosen as a first approach as these constitute a major part of global and regional diets and contamination of these foods could directly have a significant impact on exposure. The identification of key staple food - contaminant combinations that CCCF did not yet consider could guide prioritizing future work of CCCF. Therefore, an overview of these foods has been gathered, followed by a review of which staple foods have been dealt with by CCCF, either by MLs or COPs. Based on this information, CCCF is requested to determine if this approach is appropriate in determining if there are new major food contamination of concern for public health to be dealt with by CCCF and/or which follow-up approach would be appropriate.

Staple foods

There has been major work on the definition and research of staple foods by FAO[1], summarized below.

According to FAO, a staple food, food staple, or simply a staple, is a food that is eaten regularly and in such quantities as to constitute the dominant part of the diet and supply a major proportion of energy and nutrient needs. A staple food of a specific society may be eaten as often as every day or every meal, and most people live on a diet based on just a small number of food staples.

Most people live on a diet based on one or more of the following staples: rice, wheat, maize (corn), millet, sorghum, roots and tubers (potatoes, cassava, yams and taro), and animal products such as meat, milk, eggs, cheese and fish. Just 15 crop plants provide 90 percent of the world's food energy intake, with three - rice, maize and wheat - making up two-thirds of this. These three are the staples of over 4 billion people. Roots and tubers are important staples for over 1 billion people in the developing world. They account for roughly 40 percent of the food eaten by half the population of sub-Saharan Africa.

Many countries are experiencing a similar shift away from traditional foods, but there is growing recognition of the importance of traditional food crops in nutrition. Cassava, considered a minor crop at the turn of the century, has now become one of the developing world's most important staples providing a basic diet for around 500 million people. Plantings of cassava are increasing faster than for any other crop. Quinoa, a grain grown in the high Andes, is also gaining wider acceptance even outside of Latin America with the introduction of new varieties and improved processing. Other traditional foods may become more important in nutrition, and simultaneously, in trade.

From the listings above, it can be concluded that currently, the most important staple foods are

- the cereals maize, rice and wheat;
- roots and tubers such as cassava, potatoes, sweet potatoes and yams;
- pulses such as soy beans;
- and starch-rich fruits (or other plant product) such as plantains, breadfruit and sago
- terrestrial and aquatic animal products such as meat, milk, eggs, cheese and fish and other seafood

Review of existing CCCF standards for staple foods

Based on the list above, an inventory was done on existing MLs and COPs for staple foods. This inventory can be found in the table below.

[1] *United Nations Food and Agriculture Organization: Agriculture and Consumer Protection.* "Dimensions of Need - Staples: What do people eat?" , 2010

Commodity/Product name	MLs	COPs
Raw grains		
Maize	Deoxynivalenol, Fumonisins (B1+ B2), Cadmium	
Rice	Arsenic, cadmium	Arsenic (rice)
Wheat (FFP)	Cadmium	
Barley (FFP)	Deoxynivalenol, Ochratoxin A	
Rye	Ochratoxin A	
Cereal grains (unspecified)	Cadmium, lead	Mycotoxins (zearalenone, fumonisins, ochratoxin A, trichothecenes, aflatoxins, ergot and ergot alkaloids), pyrrolizidine alkaloids (weed control in crops).
Root and tuber crops		
Root and tuber vegetables	Cadmium, lead	
Gari, cassava flour	Hydrocyanic acid	Hydrocyanic acid (cassava)
Pulses		
Pulses	Cadmium, Lead	
Fish and seafood		
Fish	Lead, Methylmercury	
Marine bivalve molluscs	Cadmium	
Cephalopods	Cadmium	
Terrestrial animal products		
Milk	Aflatoxin M1, lead	Aflatoxin B1, Dioxins, PCBs
Meat	Lead, tin (canned meat)	Dioxins, PCBs
Eggs		Dioxins, PCBs

It should be noted that the following food - contaminant combinations are scheduled for discussion at CCCF13:

- Cereals (wheat, maize, sorghum and rice, discussion paper total aflatoxins)
- Cassava (discussion paper HCN and mycotoxins)
- Quinoa (discussion paper lead and cadmium)
- Fish (discussion paper new MLs methylmercury)
- Eggs and egg products, cereal flours and starch, seafood and processed fish (discussion paper prioritization new MLs lead)

Discussion

One approach could be to have a systematic exploration of possible contamination of the identified staple foods, as reported in the scientific literature or identified through national food monitoring, and identify if there are key staple food - contaminant combinations that could be of health concern but have not been considered by CCCF.

Recommendations

CCCF13 is invited to consider whether the approach taken above provides an adequate framework to identify important topics of work for CCCF from a public health perspective, to be taken up in the forward plan for future work.

Appendix B: Review of existing CCCF standards that may need revision

Introduction

For many years, CCCF has produced numerous standards, of which some may need to be updated in the meanwhile. In particular, this may apply to MLs/GLs and COPs that have been established a long time ago (e.g. under CCFAC) and have not been revised since, or contaminants for which only COPs have been developed where no ML could be developed (yet). Up to now, updates were done when from discussions in CCCF or JECFA evaluations new information became available, but no structured approach on identification for the need to review existing standards has been applied.

Discussion

It could be discussed by CCCF whether an approach should be developed with criteria on when and why to update/supplement existing MLs and CoPs, e.g. developing a system where members provide input on new information that triggers an update.

Recommendations:

CCCF is invited to consider whether a structured approach to identify the need to review existing standards should be developed and if yes, what this approach should entail.

Appendix C: Evaluation of implementation of CCCF COPs - proposed STDF research project

Introduction

The Codex Committee on Contaminants in Foods (CCCF) develops two types of standards: Maximum levels (MLs) and Codes of Practices (COPs) to prevent and reduce contamination of food and feed. COPs contain technical guidance to producers for the safe production of food. As MLs are set on the principle of '*As Low As Reasonably Achievable* (ALARA)', the COPs are an important tool to reduce contaminant levels to the maximum possible. In addition, COPs help producers to comply with the MLs that are set. In cases where no ML could be set, COPs are an important management tool to keep contamination low.

At present, CCCF has developed 21 COPs (see Annex for the list) and is working on two more. During the discussions on several contaminants, it was noted that COPs were not always implemented. Therefore an evaluation of the implementation of the COPs and the difficulties involved is proposed. With this evaluation, it can be determined what the reasons are for not (fully) implementing a COP, which in turn could help CCCF in developing COPs that better address the needs of countries and could contribute to the review and revision as discussed in Appendix B. As to limit the scope of the work, it could be considered to select three or four COPs for this evaluation.

Because of their experience in supporting developing country governments and the private sector to tackle sanitary and phytosanitary (SPS) capacity gaps, it is proposed that the Standards and Trade Development Facility (STDF) performs this evaluation, with FAO as a potential implementing organisation.

Objective

- To evaluate the implementation of the CCCF COPs, particularly in developing countries
    - In general, do food safety officials (at all levels) and food producers know of the existence of Codex COPs?
    - If so, have relevant COPs been identified for local food production (e.g. COP for aflatoxins in peanuts for peanut producing countries) and by whom?
    - Which COPs have actually been used by food producers? Or used in education of food producers? And if so, how? If not, why not?
    - If so, has use of the COP(s) been effective in preventing or reducing contamination of food and/or feed with contaminants?
- To identify the procedural possibilities and difficulties of implementation of the COPs
    - Who is in practice responsible for initiating and/or facilitating use of the COPs?
    - Are mechanisms in place to distribute the COPs?
    - Are mechanisms in place to translate the COPs to other formats (e.g. flyers), languages, and/or local practices, if needed?
- To identify which parts on the content of the COPs work and what needs to be changed
    - Is the used language understandable?
    - Is the information in the right place in the COP?
    - Who is in practice perceived as the target audience of the COPs? Authorities or the food producer?
    - Does the COP cover all local food producing techniques?
    - Are useful practices missing from the COP? E.g. local practices that have been proven to be effective in preventing or reducing contamination that are not in the COP.
    - Is there a feed-back loop to gather information from those implementing the COPs?
- To develop criteria for CCCF to which new COPs must comply in order to facilitate good implementation, based on the information gathered in the previous bullets.

Expected outcome:

- To develop procedures to assist countries in implementation of the COPs (e.g. for national food safety authorities)
- To establish a feedback mechanism for CCCF to evaluate the points of the COPs to improve.
- To use the developed criteria in the development and updating of COPs by CCCF

Recommendations

CCCF is invited to consider the proposed project and

- To agree in principle with developing this project for submission to STDF. Further development of a proposal could be organized by the Host country secretariat after CCCF13.

For this consideration, CCCF could discuss

- Which COPs may be eligible for evaluation of implementation;
- Which countries would be willing to join in this project.

Appendix C – Annex: COPs of CCCF

Code	Title
CXC 45-1997	Code of Practice for the Reduction of Aflatoxin B1 in Raw Materials and Supplemental Feedingstuffs for Milk-Producing Animals
CXC 49-2001	Code of Practice Concerning Source Directed Measures to Reduce Contamination of Foods with Chemicals
CXC 50-2003	Code of Practice for the Prevention and Reduction of Patulin Contamination in Apple Juice and Apple Juice Ingredients in Other Beverages
CXC 51-2003	Code of Practice for the Prevention and Reduction of Mycotoxin Contamination in Cereals
CXC 55-2004	Code of Practice for the Prevention and Reduction of Aflatoxin Contamination in Peanuts
CXC 56-2004	Code of Practice for the Prevention and Reduction of Lead Contamination in Foods
CXC 59-2005	Code of Practice for the Prevention and Reduction of Aflatoxin Contamination in Tree Nuts
CXC 60-2005	Code of Practice for the Prevention and Reduction of Inorganic Tin Contamination in Canned Foods
CXC 62-2006	Code of Practice for the Prevention and Reduction of Dioxin and Dioxin-like PCB Contamination in Food and Feed
CXC 63-2007	Code of Practice for the Prevention and Reduction of Ochratoxin A Contamination in Wine
CXC 64-2008	Code of Practice for the Reduction of 3-Monochloropropane-1,2-diol (3-MCPD) during the Production of Acid-HVPs and Products that Contain Acid- HVPs
CXC 65-2008	Code of Practice for the Prevention and Reduction of Aflatoxin Contamination in Dried Figs
CXC 67-2009	Code of Practice for the Reduction of Acrylamide in Foods
CXC 68-2009	Code of Practice for the Reduction of Contamination of Food with Polycyclic Aromatic Hydrocarbons (PAH) from Smoking and Direct Drying Processes
CXC 69-2009	Code of Practice for the Prevention and Reduction of Ochratoxin A Contamination in Coffee
CXC 70-2011	Code of Practice for the Prevention and Reduction of Ethyl Carbamate Contamination in Stone Fruit Distillates
CXC 72-2013	Code of Practice for the Prevention and Reduction of Ochratoxin A Contamination in Cocoa
CXC 73-2013	Code of Practice for the Reduction of Hydrocyanic Acid (HCN) in Cassava and Cassava Products
CXC 74-2014	Code of Practice for Weed Control to Prevent and Reduce Pyrrolizidine Alkaloid Contamination in Food and Feed
CXC 77-2017	Code of Practice for the Prevention and Reduction of Arsenic Contamination in Rice
CXC 78-2017	Code of Practice for the Prevention and Reduction of Mycotoxins in Spices
In progress	Proposed draft code of practice for the reduction of 3-MCPD and glycidyl esters in refined oils and products made with refined oils
In progress	Discussion paper on revision of the Code of practice for the prevention and reduction of lead contamination in foods (CXC 56-2004)
In progress	Discussion paper on a code of practice for the prevention and reduction of cadmium contamination in cocoa

Appendix D: Possible other future topics for CCCF

Introduction

This part of the forward plan identifies topics that have not been (fully) addressed yet by CCCF.

The mandate of CCCF is

(a) to establish or endorse permitted maximum levels or guidelines levels for contaminants and naturally occurring toxicants in food and feed;

(b) to prepare priority lists of contaminants and naturally occurring toxicants for risk assessment by the Joint FAO/WHO Expert Committee on Food Additives;

(c) to consider methods of analysis and sampling for the determination of contaminants and naturally occurring toxicants in food and feed;

(d) to consider and elaborate standards or codes of practice for related subjects; and

(e) to consider other matters assigned to it by the Commission in relation to contaminants and naturally occurring toxicants in food and feed.

The definition of contaminant according to the Preamble of the GSCTFF is

"Any substance not intentionally added to food or feed for food producing animals, which is present in such food or feed as a result of the production (including operations carried out in crop husbandry, animal husbandry and veterinary medicine), manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food or feed, or as a result of environmental contamination. The term does not include insect fragments, rodent hairs and other extraneous matter".

The Codex definition of a contaminant implicitly includes naturally occurring toxicants including toxic metabolites of certain microfungi that are not intentionally added to food and feed (mycotoxins).

Toxins that are produced by algae and that may be accumulated in edible aquatic organisms such as shellfish (phycotoxins) are also included in this Standard. Mycotoxins and phycotoxins are both subclasses of contaminants.

Endogenous natural toxicants, such as e.g. solanine in potatoes, that are implicit constituents of food and feed resulting from a genus, species or strain ordinarily producing hazardous levels of a toxic metabolite(s), i.e. phytotoxins are not generally considered within the scope of this Standard. They are, however, within the terms of reference of CCCF and will be dealt with on a case-by-case basis.

Quality factors, residues of pesticides, veterinary drugs and processing aids, and microbial toxins are excluded from the GSTCFF.

According to this mandate and the definition of contaminant, possible topics for future work of the Committee have been included in the section below.

Possible future topics

- Plant toxins (other than Pyrrolizidine alkaloids)

  There have been many cases where plant toxins are cause of human intoxications. Examples include 'mad honey disease' from granayatoxins in honey, intoxication of babies after consumption of tea infused with poppy seeds (opium alkaloids) or cyanide poisoning by ingestion of bitter apricot kernels. As these toxins may impose concrete health risks, they could be topic for future work.

- Marine biotoxins

  Due to climate change, it can be expected that these toxins will occur more frequently in fish and seafood. Only some MLs for phycotoxins have provisionally been endorsed by CCCF2. A report from an FAO/WHO expert consultation on ciguatera toxins is expected mid- 2019 which may give rise to some follow-up work in CCCF, but a comprehensive approach to identify all relevant toxins could be developed.

- Packaging materials or in general Food Contact Materials

  These compounds are covered by the scope of the definition of contaminant. Only acrylonitrile and vinyl chloride monomer have been included in the GSCTFF. However, apart from these compounds, CCCF has not worked on food contact materials yet.

- Identification of key feed commodity – contaminant combinations

  Feed is in the mandate of CCCF, as contaminants in feed can have a substantial contribution to the exposure via food. however, only one ML has been established for feed (melamine), and one COP

(aflatoxin in feed). A farm-to-fork approach is generally accepted as strategy to ensure chemical safety in the food chain. CCCF could implement this approach by assessing the relevance of feed for health risks in the discussions on contaminants.

- New developments in food production.

  Currently, many innovations are being implemented in the food chain, such as the production of meat by other methods than animal production, i.e. ‘ artificial meat’. This could introduce new hazards which have not been assessed yet.

Recommendations

CCCF is invited to discuss whether the topics above should be subject of new work, and if so, if this should be done on the short- or longer term.