

# CODEX ALIMENTARIUS COMMISSION



Food and Agriculture  
Organization of the  
United Nations



World Health  
Organization

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Agenda Items 5-13, 16

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## JOINT FAO/WHO FOOD STANDARDS PROGRAMME

### CODEX COMMITTEE ON CONTAMINANTS IN FOODS

15th Session

Virtual

9-13 and 24 May 2022

Comments of Ghana

#### Agenda Item 5: CX/CF 22/15/5

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**Position:** Ghana supports the EWG proposed draft ML of 2.0 mg/kg for cadmium in cocoa powder.

**Rationale:** This level would protect the health of consumers as well as promoting trade.

#### Agenda Item 6: CX/CF 22/15/6

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**Position:** Ghana supports the development of the Code of Practice (COP) for the prevention and reduction of cadmium contamination in cocoa.

**Rationale:** Ghana is a major exporter of cocoa beans and the recommended practices in the COP will provide guidance in the prevention and reduction of cadmium (Cd) contamination in cocoa beans during production and postharvest processing, fermentation, drying, storage and transportation.

#### Agenda Item 7: CX/CF 22/15/7

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**Position:** Ghana proposes the postponement of the setting of maximum levels for lead in eggs, culinary herbs, spices, sugars and sugar-based candies and food for infants and children until the COP for prevention and reduction of lead contamination in food has been adopted and implemented for about 3 years.

**Rationale:** Most of the occurrence data from Africa on lead levels in the food commodities being considered were generally above the proposed MLs. Hence the implementation of the revised code of practice for prevention and reduction of lead in food will make the commodities compliant to the proposed limits.

#### Agenda Item 8 and 13: CX/CF 22/15/8

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##### 1. Maximum levels for methylmercury in orange roughy and pink cusk eel

**Position:** Ghana supports the recommendation for the adoption of the proposed ML of 0.8 mg/kg methylmercury for orange roughy and 1.0 mg/kg methylmercury for pink cusk-eel.

**Rationale:** Three species of fish were identified for the setting of ML by CCCF14 namely orange roughy, pink cusk-eel and Patagonian toothfish.

The EWG demonstrated that the available data and information for methylmercury in orange roughy and pink cusk-eel meet the criteria previously used to set MLs of 1.2 mg/kg for tuna, 1.5 mg/kg for alfonso, 1.7 mg/kg for marlin and 1.6 mg/kg for shark. Also the minimum sample number of 74 (for either the methylmercury dataset alone or a combined regression modelled dataset) as set by the EWG was met for the two datasets: for orange roughy and pink cusk-eel. Specifically, the EWG observed the following for **Orange roughy**:

- There were sufficient sample numbers (101 samples for methylmercury) to be confident in proposing an ML.
- The average concentration ratio of methylmercury to total mercury was significantly positively correlated (Pearson Correlation Coefficient: 0.97;  $p < 0.05$ ).
- The average concentration of methylmercury (0.43 mg/kg) exceeded the selection criterion (0.3 mg/kg).

Based on a less than 5% rejection rate, the hypothetical ML (0.8mg/kg for methylmercury in Orange roughy) was derived.

For Pink cusk-eel, the following were observed:

- There were sufficient sample numbers (120 samples for methylmercury) to be confident in identifying an ML.
- In the 120 paired Pink cusk-eel samples the average concentration ratio of methylmercury to total mercury was 86%.
- The average concentration ratio of methylmercury to total mercury was significantly positively correlated (Pearson Correlation Coefficient: 0.9896;  $p < 0.05$ ), with a linear line of best fit.
- The average concentration of methylmercury was 0.46 mg/kg; exceeding the selection criterion (0.3 mg/kg).

The modelled dataset confirms that an ML of 1.0 mg/kg methylmercury in pink cusk-eel is reasonable. The proposed ML is the closest hypothetical ML to the 95th percentile concentration of methylmercury

## 2. Sampling plan

**Position:** Ghana supports the recommendations of the EWG to:

1. Progress further development of the sampling plan based on the approach referred to in Appendix II through the EWG; and
2. Request for a circular letter/call for data on the national sampling plans for mercury in fish, or other contaminants in fish.

**Rationale:** The conclusions of CCCF11 in terms of progressing MLs for methylmercury in fish identified that MLs should be accompanied by sampling plans. A general sampling plan for methylmercury in fish was developed using European Union: Commission Regulation (EC) No 333/2007 as a basis. CCCF12 agreed to send the sampling plans to CCMAS for endorsement and to request advice on:

- The necessary performance criteria for the MLs;
- Whether there is evidence that methylmercury can vary widely between individual fish sampled at the same time. How this would apply to large fish sold as individual units and whether the sampling plan provides enough basis to deal with this; and
- Whether the whole fish should be analysed or only specific fractions of edible portions. Currently only the mid-section are sampled for some large fish.

CCMAS39 was unable to respond to the questions raised in relation to the sampling plan as the questions were outside the remit of CCMAS. CCMAS39 did not endorse the sampling plan for MLs for methylmercury in fish and agreed to return the sampling plan to CCCF for further consideration. At CCCF13 the chair of the EWG informed the Committee that a revised sampling plan would not be presented for approval as there were areas of inconsistency with other sampling plans in the GSCTFF that needed to be addressed. CCCF13 agreed to consider issues related to sampling plans for methylmercury in fish, through the consideration of contemporary scientific literature and national monitoring data, as part of the re-established EWG examining the feasibility of MLs for additional fish species (REP19/CF). It was agreed that the EWG would present these findings for consideration at CCCF14.

At CCCF14 it was agreed to continue further work on the sampling plan following the approach proposed in Appendix IV of CX/CF 21/14/11 and that further work should ensure the practicality of the sampling plan (REP21/CF para 164).

Information on national sampling plans for mercury in fish or other contaminants, particularly tuna, shark, alfonsino, and marlin, orange roughy and pink cusk-eel was sought from EWG members. In response to this request one member reiterated that species-specific sampling plans are not the typical approach for sampling fish and this approach would need to be confirmed with data and suggested that the EWG consider the level of effort needed to develop species-specific annexes given the Committee's overall agenda. One member reiterated support for seeking information on national plans for mercury or other contaminants in fish from CCCF member countries, particularly key exporting and importing countries of tuna, shark, alfonsino, and marlin, orange roughy and pink cusk-eel. They also noted that they were seeking this information from relevant authorities within their country and will aim to share it with the EWG for consideration once it's available. One member noted that basing sampling plan criteria on monetary value could complicate the sampling plan, as monetary value can differ at any given point in time based on characteristics unique to each international market and may lead to further updates to the sampling plan when fish values fluctuate. It was also noted that at the point of sampling the market value of the carcass may not be precisely known, as the fish may be sampled at a point in the distribution chain prior to the carcass being priced. Thus more work is necessary to finalise the sampling plan.

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**Agenda Item 9: CX/CF 22/15/9**

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**Position 1:** Ghana does not support the setting of MLs for maize grain or sorghum grain intended for further processing. We however recommend the establishment of ML of 10µg/kg for total aflatoxins in maize grain and sorghum grain for direct human consumption.

**Rationale:** In Ghana, huge proportions of maize and sorghum grains are sold for direct human consumption and not necessarily for further processing. It was generally accepted at CCCF14 that it would be difficult to segregate data for maize for **human consumption** from data for **maize intended for animal feed** or **intended for direct human consumption**, as its intended purpose was not always indicated on the lot.

Given this acceptance, CCCF14 directed that consideration should be given to establishing an ML only for ready-to-eat maize based on the whole dataset. This is more suitable for human health protection especially in Ghana and other African countries where maize is a staple food and is traded as maize regardless of whether it would be going for further processing or meant for direct human consumption.

In the same context, Ghana has already adopted 10 µg/kg for maize and sorghum grains regardless of whether it is destined for further processing or direct human consumption. This approach is taken to protect the people in Ghana consuming maize or sorghum grains without further processing. In this case, the ML for the whole category of maize should be 10 µg/kg in line with already existing standards in many African countries.

**Position 2:** Ghana recommends the adoption of an ML of 10 µg/kg for maize grain, flour or meal; semolina and flakes derived from maize; husked rice; polished rice and sorghum grain or products derived from sorghum.

**Rationale:** The ML of 10 µg/kg is being enforced in Ghana for all these range of food commodities for the general population. It is also observed that the ML of 10 µg/kg was based on high consumption of cereal-based foods in Ghana.

It should be noted that the consumption levels used by the EWG to estimate aflatoxin exposures from maize are about one tenth of the average mean consumption (up to 400g/person/day) in Africa. For maize, the EWG used the mean consumption of 12.33 g/person obtained from GEMS/Food Cluster 6. For rice the mean consumption used was 31.05 g/person and obtained from Cluster 3. For sorghum the mean consumption obtained from Cluster 12 (7.12 g/person) was used. Thus, the proposed MLs are not consistent with the exceptionally high consumption patterns in Africa.

**Position 3:** Ghana does not support the adoption of an ML of 10 µg/kg in cereal-based food for infants and young children

**Rationale:** Low levels of aflatoxins are expected in cereal-based foods for infants. Given the challenge of sourcing aflatoxin free cereal-based foods, there is a need to adopt a maximum limit for aflatoxin contamination in these foods. Given the high vulnerability of infants and young children to aflatoxin exposure, **4 µg/kg** is the highest ML the EWG would be expected to propose.

**Position 4:** Ghana supports the EWG proposal of suspending the development of sampling plans until finalization of the MLs and in addition, provide advice on the points raised below:

1. If the sampling plan and the decision rule should be aligned with the sampling plans for mycotoxins already mentioned in General Standard for Contaminants and Toxins in Food and Feed (CXS 193-1995) or with the General Guidelines on Sampling (CXG 50-2004) once they are finalized by the Codex Committee on Methods of Analysis and Sampling (CCMAS).
2. If CCMAS should be consulted regarding how to establish performance criteria for a sum of components (AFB1, AFB2, AFG1 and AFG2) in the different matrices considering that AFB1, AFB2, AFG1 and AFG2 are not distributed equally and presents different profile in the various cereal grains.

**Rationale:** Proper enforcement of MLs is dependent on proper sampling and test methods. CCCF14 decided to develop sampling plans associated with the proposed MLs. Nevertheless, the EWG recommended to set MLs before moving forward with the sampling plans and the methods of analysis, because they depend on the MLs.

It should be noted that most of the countries in Africa have not established clear methods for sampling and analysis of aflatoxins in foods. In Ghana, ML of 10 µg/kg is applied for both cereal grain and products derived from them. This is because the use of maize and sorghum grains is not limited to further processing. Thus, it is essential to set sampling and test methods appropriate to this ML.

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**Agenda Item 10: CX/CF 22/15/10**

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**Position:** Ghana supports the adoption of an ML of 10µg/kg for total aflatoxins in ready-to-eat (RTE) peanuts.

**Rationale:** Ghana supports the ML of 10 ppb for total aflatoxin in RTE peanuts on grounds that:

1. MLs for RTE peanuts should be lower than that set for peanuts intended for further processing (15 ppb) as this implies that processing can further reduce the contamination level and
2. the ML of 10 µg/kg is being enforced in some African countries for RTE peanuts.

Further to the above given reasons, the EWG concluded that there is sufficient justification to recommend an ML ≥10 to < 15 µg/kg for AFT in RTE Peanuts considering the carcinogenicity of AFT and the conclusion of JECFA 83. Additionally, Ghana supports the ML of 10ppb over 12ppb due to the following reasons:

- CCCF needs to be consistent with the approach already taken by Codex for establishing MLs of AFT for tree nuts (i.e. 10 µg/kg for RTE & 15 µg/kg for further processing).
- considering the fact that aflatoxin in peanuts intended for further processing has already an ML of 15 µg/kg.
- CCCF has previously proposed an ML of 10 µg/kg RTE Peanuts.
- the EWG has confirmed that there is justification for adopting an ML of 10ppb for total aflatoxins in RTE peanuts.

**Position 2:** Ghana supports the EWG recommendation of requesting the Codex Committee on Methods of Analysis and Sampling (CCMAS) to determine an appropriate sampling plan for AFT in RTE peanuts once a limit is adopted.

**Rationale:** It is essential to set sampling and test methods appropriate to the adopted ML. Although most countries in Africa have adopted the ML of 10ppb for aflatoxins in RTE peanuts, they have not adopted specific sampling plans for the product. The EWG confirmed that the aflatoxin contamination data in the GEMS/Food data sets were generated using the existing method of sampling for peanuts for further processing.

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**Agenda Item 11: CX/CF 22/15/11**

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**Position:** Ghana supports the setting of 20µg/kg as MLs for AFT and OTA in the five spices

**Rationale: MLs for AFT and OTA**

The problem of mycotoxins in spices is not a public health concern but a trade issue and this is because dietary exposure to mycotoxins due to consumption of spices is negligible. Setting MLs of less than 20µg/kg for the two toxins eliminates more than 5% of chilies, nutmeg and ginger from international trade. Since the global average consumption of spices and tree nuts (excluding groundnuts) are as low as 2.6 and 36.9 g/per day respectively, establishing MLs at 20µg/kg might have little or no difference with regards to consumers' health as compared to MLs of 10 or 15 µg/kg. It is only appropriate therefore to agree on the recommended higher MLs which will allow more of the commodity in trade with little or no difference in public health impact. More so the contamination data for AFT and OTA (5 – 35ppb) from 40 countries including four African countries which were used for decision are indicative that the upper MLs will be easily achievable in Africa.

**SAMPLING PLANS**

Although the ISO 984 sampling plan for spices and condiments describes in sufficient details, the apparatus, constitution of lots, methods of taking increments, bulk and laboratory samples, packaging and labelling, storage and dispatch of samples and sampling report, the plan did not give the type of grinder and sieve sizes for sample preparation neither was the minimum mass of laboratory samples given. However, the plan has enough information for it to be used in the interim by the EWG pending the development of a plan that would ensure accuracy and precision.

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**Agenda Item 12: CX/CF 22/15/12**

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**Position:** Ghana supports the development of a Code of Practice (COP) for the prevention and reduction of mycotoxin contamination in cassava and cassava-based products.

**Rationale:** Cassava and cassava-based products are widely consumed and traded in Ghana. One of the common groups of contaminants in cassava and cassava based products are mycotoxins. Mycotoxins, (aflatoxin and ochratoxin A -in particular) are of public health concern in both fermented and unfermented cassava products. Fungal contamination of cassava products occurs along the food chain due to poor agricultural, manufacturing and handling practices.

This Code of Practice provides current information on the required practices to control contamination of cassava and cassava fermented products with mycotoxins. Emphasis was on the following:

- Stages at which best practices should apply in prevention or reduction of mycotoxins in cassava and cassava-based products.
- The processing conditions required to prevent or reduce mycotoxin contamination.
- Critical parameters which are applicable to comply with from farm selection, farm clearing, cassava variety selection, planting to harvesting as well as post-harvest activities.
- Education and Personnel hygiene measures.
- The identified storage conditions to prevent or reduce mycotoxins contamination.
- Prevention or reduction measures during transport and distribution

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**Agenda Item 16: CX/CF 22/15/15**

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**Position:** Ghana supports the recommendations of the electronic working group with regards to the submission and requests to CCMAS, namely:

- To submit the table of performance criteria for lead and cadmium for inclusion in CXS 234-1999
- To recommend the revocation of CXS 228-2001
- To request CCMAS to remove methods for lead in Appendix II from CXS 234 and transfer to Appendix I as examples of applicable methods
- To request CCMAS to identify and suggest examples of applicable analytical methods meeting performance criteria for inclusion in Appendix I
- To request CCMAS to evaluate the appropriateness of replacing the existing performance criteria in CXS 234 for lead and cadmium in natural mineral waters according to Appendix I.

**Rationale:** The Committee previously agreed to review the methods in the Standard for General Methods of Analysis for Contaminants (CXS 228-2001) with the view to transferring them to the General Standard for Recommended Methods of Analysis and Sampling (CXS 234-1999) and revoke CXS 228. In addition, the appropriateness of using method performance criteria was considered. The working group found that only cadmium and lead were within the scope of this work.

Method performance criteria rather than defined methods have found acceptance in other international partners such as EFSA. CCMAS has agreed to numeric performance criteria in recently adopted methods for lead in butter, casein and whey products. The use of performance criteria emphasizes the need for regulatory laboratories to demonstrate that they can achieve acceptable laboratory performance rather than just reporting the use of a method type.