



JOINT FAO/WHO FOOD STANDARDS PROGRAMME
EXECUTIVE COMMITTEE OF THE CODEX ALIMENTARIUS COMMISSION

Eighty-eighth Session

FAO headquarters, Rome, Italy

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CRITICAL REVIEW - PART III¹

Note: For general information about the critical review and the critical review for CCAFRICA25 and CCNASWP17, please see CX/EXEC 25/88/2. For the critical review for CCFFV23, CCFA55 and CCCPL11, please see CX/EXEC 25/88/2 Add.1.

1. Structure of appendices

The work of the different committees is addressed in separate appendices. The structure of the appendices for each committee is as follows:

1. General information on the committee and session
2. Overall comments (Secretariat/Chairperson)
3. Status of work items (Overview)
4. Specific comments on individual work items (Secretariat/Chairperson)

2. List of appendices

Appendix 1: Codex Committee on Methods of Analysis and Sampling, 44th session (CCMAS44)

¹ This document addresses CCMAS44.

Appendix 1

1. General

Committee	Codex Committee on Methods of Analysis and Sampling (CCMAS)		
Host	Hungary	Chairperson	Dr Attila Nagy
Session reported on	CCMAS44	5-8 May and 14 May 2025	
Next session	CCMAS45	9-13 March 2026	
Report	REP25/MAS		

2. Overall comments

Secretariat's comments:

CCMAS44 was held virtually with strong participation from 74 Member countries, one Member organization, and 21 Observer organizations. Despite lacking in-person interaction, discussions were constructive, demonstrated compromise, with all agenda items thoroughly discussed and concluded with clear ways forward. A virtual endorsement working group meeting (VWG) and a webinar on sampling plans held before CCMAS44 helped to address some complex discussions to facilitate decision-making during plenary.

CCMAS44 forwarded some methods for fruit juices and cocoa products and chocolates to CAC48 for adoption/revocation as part of its ongoing review of the *Recommended methods of analysis and sampling* (CXS 234-1999). Other methods for these, and for additional commodity groups identified by the lepnary and the Codex Secretariat, required a further review. CCMAS44 established/re-established an expert group on fruit juices and two electronic working groups (EWG) to progress this work. Consideration on retyping the ISO 1871 method for protein in quinoa was deferred to CCMAS45 to allow more time for review.

CCMAS44 submitted the list of "Nitrogen to protein conversion factors" (Nx), for approval by CAC48, as an Annex to CXS 234-1999, and agreed to publish the information document for the *General guidelines on sampling* (CXG 50-2004) on the Codex website. The numeric performance criteria (NPC) on nitrates and nitrites in certain food matrices will be forwarded to CCFA for further consideration.

Ongoing work include considering methods to support CCFL's work on precautionary allergen labelling (PAL); harmonisation of names of principles in CXS 234-1999 to support the future development of the database on methods of analysis; reviewing sampling plans in CXS 234; and the sampling approaches used for bulk materials and heterogenous lots.

An issue of note for CCMAS is that with the review of methods of analysis in CXS 234 and the corresponding commodity standards, issues might arise that require communication with the relevant commodity committee. However, many methods of analysis in CXS 234 are for provisions in commodity standards developed by committees that no longer exist or are adjourned *sine die*. While CCMAS has within its remit the possibility to make changes to methods of analysis for the aforementioned standards, a problem arises when clarity is needed on the aim of a provision in such commodity standards or where a proposal is made for amendments to a provision to better help identify or correspond to a method of analysis. This problem is not limited to the review of methods of analysis (see items 4 and 6) but also the update of nitrogen conversion factors (see item 2), and to the harmonization of provision names in CXS 234 (see item 11) – which will require inputs from the commodity committee. CCEXEC might wish to advise how this communication can proceed when a committee is adjourned *sine die* or is no longer existing.

Chairperson's comments:

CCMAS44 was held in a virtual format for financial reasons and not pandemic-related ones which was the case for CCMAS41 (2021). Despite the inherent challenges of a virtual format, the work proceeded appropriately and efficiently. I would like to express my appreciation to everyone whose participation was made challenging by early or late working hours due to time zone differences.

For CCMAS43, we opted for a hybrid format, which allowed us to become familiar with interpretation for remote participation that could potentially have caused most disruption. As a result, no interpretation-related issues arose during the trilingual CCMAS44.

Compared to a physical plenary session (which typically lasts about 20 working hours), we had significantly less time available for CCMAS44, approximately 11 working hours. Accordingly, we planned a slightly shorter duration when preparing the agenda. Even with this constraint, we successfully completed all planned tasks and were able to prepare well-founded proposals for CAC48.

In addition to the significant cost reduction for the host country, CCMAS44 being virtual represented no travel cost to delegates and member countries. This was clearly reflected in the level of participation; while the physical sessions were typically attended by 40-45 Members, 74 Member countries participated in CCMAS44. While CCMAS43's hybrid model did not lead to increased participation, the level of inclusiveness improved considerably for CCMAS44, thanks to the virtual format.

3. Status of work items

Topic	Job number	Target year	Recommendation of the Committee
For decision by the Commission			
1. Methods of analysis/performance criteria/sampling plan for provisions in Codex standards (CXS 234-1999)	Ongoing	-	Adoption/Revocation
2. Inclusion of "Nitrogen to protein conversion factors" as an Annex to the <i>Recommended methods of analysis and sampling</i> (CXS 234-1999)	-	-	Adoption
For information			
3. Information document for the <i>General guidelines on sampling</i> (CXG 50-2004)	For publication on the Codex website		
4. Review of methods of analysis in various commodity standards	For consideration by CCMAS45		
5. Methods of analysis for protein in quinoa	For consideration by CCMAS45		
6. Review of methods of analysis in CXS 234: selected methods in the fruit juices and cocoa products and the chocolate workable packages	For consideration by CCMAS45		
7. Review of sampling plans (CXS 234-1999)	For consideration by CCMAS45		
8. Discussion paper on sampling plans for bulk materials, including mycotoxins	For consideration by CCMAS45		
9. Testing methods: nitrates and nitrites in certain food matrices (CXS 192-1995)	For consideration by a future session of CCMAS		
10. Testing methods: Precautionary allergen labelling (CXS 1-1985)	For consideration by CCMAS45		
11. Harmonization of names and format for principles (CXS 234-1999)	For consideration by CCMAS45		

4. Specific comments

1. Methods of analysis/performance criteria/sampling plans for provisions in Codex standards (CXS 234-1999), paragraphs 19, 27, 45, 59(i), and 86(i), Appendix II, Part 1

Status and Secretariat's comments:

A major task for CCMAS is the endorsement of methods of analysis and sampling plans forwarded to CCMAS by Codex commodity committees and the review of the methods in CXS 234-1999 to ensure that they are current.

CCMAS44 made progress on the review of the fruit juices and cocoa products and chocolate workable packages, and some methods of analyses in these workable packages are forwarded for adoption by CAC48. Outstanding issues remain for both workable packages (see item 6).

CCMAS44 considered recommendations on methods of analysis and sampling plans proposed for endorsement, including some outstanding issues from CCMAS43, and forwarded the following to CAC48 for adoption:

- methods of analysis submitted by the Codex Committee on Nutrition and Foods for Special Dietary Uses (CCNFSDU);
- the method for sodium chloride in food grade salt and the related sampling plan, at the request of the Codex Committee on Food Additives (CCFA);
- the method for determining chloride as sodium chloride in dried meat, based on the response from the FAO/WHO Coordinating Committee for Africa (CAFRICA) to a query from CCMAS42;
- the methods for salt/sodium chloride in butter and cheese, to ensure they were up to date; and
- numeric performance criteria (NPC) for sodium chloride and salt determined as chloride expressed as sodium chloride for selected fish and fishery products.

Updates were also made to the example methods and principles that meet these numeric performance criteria, as well as the NPC for copper and iron in milk fat products. These updates will be forwarded to CAC48 for information.

The determination of moisture content in whey powder was outstanding from CCMAS43. The VWG held before plenary sessions was able to navigate complex discussions on this matter, which enabled CCMAS44 to agree to forward the method concerned with a footnote to CAC48 for adoption as a Type IV method, on an exceptional basis, in line with Section 3.9 (v) of the information document "Comprehensive guidance for the process of submission, consideration and endorsement of methods for inclusion in CXS 234", as a Type I method for this provision already existed.

Chairperson's comments:

The key strategic tasks in the work of CCMAS include: the ongoing revision of CXS 234-1999; the harmonization of methods and sampling procedures within the Codex documentation system; and the simplification of documentation by integrating all methods and sampling procedures into the framework of CXS 234-1999. Additionally, efforts are underway to expand a modern, performance-parameter-based regulatory environment.

CCMAS44 made progress in all of these areas. A new product group has entered the revision phase, the list of methods is being continuously expanded, and a comprehensive review of standards has begun across the entire Codex Alimentarius with the aim of upgrading the methods. Upon completion of this work, all methods and sampling procedures will be available in one place, in the form of CXS 234-1999, thereby ensuring harmonization and easier accessibility.

2. Inclusion of "Nitrogen to protein conversion factors" as an Annex to the *Recommended methods of analysis and sampling* (CXS 234-1999), paragraph 11(vi), Appendix III

Status and Codex Secretariat's comments:

CAC47 returned the Annex to CXS 234-1999 on "Nitrogen to protein conversion factors" to CCMAS, and requested CCMAS to: i. update the list of nitrogen to protein conversion factors (Nx) in REP24/MAS Appendix II Part 3 and ensure consistency of the Nx with those in commodity standards; ii. consider the request from CCNFSDU on the inclusion of the Nx for follow-up formula; and iii. resubmit the Annex to CAC for adoption in the future.

CCMAS44 considered the revised list of Nx and agreed to forward it for approval by CAC48 for inclusion as an Annex in CXS 234-1999, noting that the list contained those Nx that had been agreed by relevant committees and were either referenced in commodity standards or in CXS 234-1999. This list would

continue to be updated as new Nx are agreed by the respective commodity committees whose remit was to provide Nx.

There were inconsistencies observed with respect to the Nx for soy products, which should be reviewed in the future. The Codex Secretariat will look into modalities to review Nx in cases where the Nx had been developed by a committee adjourned *sine die* and where such Nx need review.

Chairperson's comments:

Harmonization and the elimination of inconsistencies resulting from more than 60 years of regulatory development are essential across all areas. Protein content forms the basis of proper nutrition and is one of the mandatory labelling elements, so it is only natural that the conversion factors used in protein determination methods have also been reviewed. As a result of this review, a list of calculation values used in Codex standards has been compiled. In addition, a systemic issue was identified, which will need to be addressed in the coming year to ensure clarity across all areas regarding the correct method for determining protein content in products.

3. Information document for the *General guidelines on sampling* (CXG 50-2004), paragraph 100, Appendix IV

Status and Codex Secretariat's comments:

CCMAS44 agreed to publish the information document for the *General guidelines on sampling* (CXG 50-2004) onto the Codex website. This information document has been developed to support the implementation of the revised *General guidelines on sampling* (CXG 50-2004). Concurrently, the existing information document titled "Practical examples of sampling plans" would be removed from the Codex website as it was based on assumptions that may not be fulfilled in practice.

The information document includes applications (apps) for sampling plans – a first for Codex. This approach to provide apps is an innovative step that enhances the practical application of CXG 50-2004, as users can uniquely determine sampling plans by inputting specific parameters, which can help in verifying that foods comply with provisions relating to composition, chemical or microbiological contaminants or pesticide residues contained in Codex standards.

Chairperson's comments:

Properly designed and implemented sampling plans are the foundation for any inspection activity. Therefore, the revision of CXG 50-2004 was a key task for CCMAS44. However, the complexity of the analytes, the products, and the evaluation tasks associated with testing is so high that CCMAS decided to develop an information document. This work has already begun and will continue in the future. This living document, supported with examples, will assist all users in correctly interpreting CXG 50-2004 and using the associated e-book.

4. Review of methods of analysis in various commodity standards, paragraph 27

Status:

Following the completion of the review of the fats and oils; cereals, pulses and legumes; and fish and fishery workable packages, the Codex Secretariat has been transferring methods of analysis in the related commodity standards to CXS 234-1999, and replacing them with a reference to CXS 234-1999 in accordance with the *Codex Procedural Manual*. However, in making these amendments, it was noted that some methods of analysis had not been reviewed within the workable packages and CCMAS was requested to review them and where appropriate, provide missing information on the methods (e.g. principle and typing).

As a substantial number of methods required review, CCMAS44 was not able to complete the review during the session. An EWG was established to continue this review and provide recommendations for consideration by CCMAS45. At this time, the methods of analysis that are pending review would not be transferred to CXS 234-1999 and would remain in the respective commodity standards.

Chairperson's comments:

The review of methods associated with a given product group is a complex task, often requiring amendments to the corresponding product standards. In addition to the significant progress made, we identified the tasks remaining for the groups not yet concluded and thus expanded our continuous work by adding a new product group.

5. Methods of analysis for protein in quinoa, paragraph 39(ii), Appendix II, Part 2

Status:

CCMAS43 endorsed the ISO 1871 method for determining protein in quinoa as Type IV, noting that the typing could be reconsidered if more information (e.g. catalysts, reagents and conditions) were provided. A circular letter was issued to request this information, but the information provided at the time of the VWG of CCMAS44 did not allow the VWG to find consensus. Further information was provided after the VWG in conference room document 19 (CRD19).

This topic is rather complex and will be considered further at CCMAS45.

Chairperson's comments:

Method validation is a highly complex process requiring the involvement of many stakeholders and the provision of detailed data. Given that the evaluation of these data takes considerable time, CCMAS44 decided to postpone the assessment of the submitted information to its next meeting.

6. Review of methods of analysis in CXS 234: selected methods in the fruit juices and the cocoa products and chocolate workable packages

6.1 Fruit juices workable package, paragraphs 70(i), Appendix II, Part 3

Status and Codex Secretariat's comments:

CCMAS44 recommended the adoption or revocation of some methods of analysis in this workable package (see item 1), and also agreed to undertake further investigation on methods with no numerical provisions in the *General standard for fruit juices and nectars* (CXS 247-2005) and methods with provisions either in CXS 247-2005 or the *General standard for food additives* (CXS 192-1995), but which were retained for further review.

A challenge for the review of methods of analysis for this group of commodities is that in many cases there are no specifications / numerical provisions for some quality and authenticity provisions of fruit juices, which is a requirement for endorsement of methods or determining their fitness for purpose. Thus CCMAS agreed to convene an expert group under the auspices of the International Fruit and Vegetable Juice Association (IFU) to look into this rather complex matter.

This approach is not unique in Codex. For example, it was previously used to review methods of analysis for cereals, pulses and legumes, for the original development of the *General guidelines on sampling*, as well as for the initial discussion on methods of analysis in the *ad hoc* Intergovernmental Task Force on Fruit and Vegetable Juices. The approach will allow experts in the field to do the ground work for CCMAS, whereafter Members will be able to review the outputs of the expert group and take decisions in an open and transparent manner. IFU has committed to assembling a diverse but focused group of global experts selected on their specific expertise. The group would be limited in size to maintain effectiveness.

Chairperson's comments:

The review of methods related to fruit juices is proceeding in a special format due to several unique circumstances. The relevant product standard provides forward-looking regulation in terms of preventing fraud and ensuring authenticity in juice production and distribution. However, we have recognized that this highly important area cannot be properly reviewed using classical CCMAS evaluation principles. Therefore, with the support of IFU and through the establishment of a dedicated expert working group, a specialized document is being developed. This document will contain the necessary technical information related to the detection of adulteration, enabling the identification of appropriate methods or performance criteria. As Codex is developing guidelines on prevention and control of food fraud, this joint effort could serve as a valuable example for other areas as well.

6.2 Cocoa products and chocolate workable package, paragraphs 86(ii), Appendix II, Part 3

Status:

CCMAS44 recommended the adoption or revocation of some methods of analysis in this workable package (see item 1), whereas other methods were retained for further consideration. The EWG was re-established to continue reviewing these methods for consideration during CCMAS45.

Chairperson's comments: The EWG set up by CCMAS43 had already reviewed part of the methods, and further work is ongoing. Special thanks to Serbia, the lead of the EWG, for continuing to coordinate the efforts related to this product group.
7. Review of sampling plans (CXS 234-1999), paragraph 118
Status: CCMAS44 agreed to re-establish the EWG to review the sampling plans in CXS 234-1999, focusing on the different approaches to place sampling plans in Codex standard(s), and the format and content of sampling plans. The EWG will further consider the issue of who is responsible for specifying parameters that determine how the sampling plan would be applied. Communication with relevant commodity committees will be essential in the work going forward.
Chairperson's comments: CXG 50-2004, and its associated documents and software tools, enable a new approach towards the development of sampling plans. To support this, it is necessary to determine who should define the specific parameters required for plan development, and in what form. In addition, a comprehensive review of the entire Codex documentation system is needed with regard to sampling methodologies.
8. Discussion paper on sampling plans for bulk materials, including mycotoxins, paragraph 119
Status: During the work on the revision of CXG 50-2004, interest was expressed to review the current sampling approaches for bulk material and heterogenous lots, including for mycotoxins. CCMAS44 agreed to develop a discussion paper relating to sampling plans for bulk materials/heterogenous lots, including mycotoxins, for consideration by CCMAS45. CCMAS will ensure communication and collaboration with the Codex Committee on Contaminants in Food (CCCF) which is responsible for developing sampling plans for mycotoxins currently incorporated in the <i>General standard for contaminants and toxins in food and feed</i> (CXS 193-1995)
Chairperson's comments: As previously stated, the review of the entire Codex documentation system is essential in light of modern principles for sampling design. Due to their significant risk factor, mycotoxins are the first area that CCMAS will examine using these new tools.
9. Testing methods: nitrates and nitrites in certain food matrices (CXS 192-1995), paragraph 125, Appendix V
Status and Codex Secretariat's comments: CCFA51 had agreed to establish both ingoing and residue levels for nitrates and nitrites in the <i>General standard for food additives</i> (GSFA) (CXS 192-1995), but specific questions on testing methods were raised for CCMAS' advice during CCFA52. CCMAS44 agreed with the NPC for nitrate and nitrite in specified food matrices, and the associated example methods, that were developed at the request of CCFA. The list of methods submitted by CCFA has also been reviewed by CCMAS, including one additional recently published method. The recommendation of CCMAS will be forwarded to CCFA for their further consideration.
Chairperson's comments: Close collaboration among the various committees is fundamental for the creation of a coherent and practical standards system. The technical inquiries submitted by CCFA are a recent example of this successful cooperation. CCFA not only requested CCMAS's input on already adopted limits, but also sought review of proposed new limits. The importance of this is underscored by the fact that we identified several products for which the proposed limits cannot currently be measured accurately. This information is critical in enabling CCFA to make informed decisions: Can a new limit be implemented without an appropriate method of verification? Or should research institutions be encouraged to develop new methods that can verify the proposed thresholds? This type of joint thinking can result in regulatory frameworks that work effectively, not only on paper, but also in practice, ensuring the production of safe food.

10. Testing methods: Precautionary allergen labelling (CXS 1-1985), paragraph 127
Status: The Codex Committee on Food Labelling (CCFL47) requested advice on standardized analytical methods and sampling used for allergen risk assessment in foods. Work in CCMAS is ongoing and an EWG will continue to consider the question from CCFL and finalise the review of methods related to PAL for consideration by CCMAS45 and reply to CCFL49.²
Chairperson's comments: Unfortunately, allergens pose an increasing challenge. As always, proper regulation requires reliable measurement methods. This is yet another example of the essential cooperation between different committees - in this case, CCFL and CCMAS. Based on health data, we can evaluate existing methods and propose appropriate analytical approaches both for self-monitoring and external audits in this critical area.
11. Harmonization of names and format for principles (CXS 234-1999), paragraph 147, Appendix VI
Status and Codex Secretariat's comments: This work is part of the review of CXS 234-1999 to ensure consistency of terminology in CXS 234-1999. Such consistency will further aid the work on the database of methods of analysis. Work is ongoing through an EWG. There will be a need for communication and input also from relevant commodity committees on parts of the work as it progresses.
Chairperson's comments: Thanks to the support of the Hungarian Ministry and central authorities, we are able to begin building a database based on CXS 234-1999. In both traditional document-based standardization systems and, especially, in the development of an IT-database, harmonized data management and the use of unified data structures (e.g. product classification systems) are indispensable. The development of the database and the review of Codex documents rely on long-standing harmonization efforts. As a result, we will be able to propose the use of consistent and clear terminology in both CXS 234-1999 and the related product standards, along with the approval of appropriate amendments.

² REP23/MAS, paragraph 17