ANALYSIS OF AGENDA ITEMS IN PREPARATION FOR THE 45TH SESSION OF THE CODEX COMMITTEE ON METHODS OF ANALYSIS AND SAMPLING (CCMAS45)

Prepared to Support the Participation of Codex Communities of Practice Supported by GFoRSS

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Disclaimer and Disclosure of Interest

It is important to note that the proposed analysis and associated conclusions and recommendations stem from the work of regional expert working groups. The analysis and associated recommendations or positions are presented as mere suggestions and should not be considered as a direction or final recommendation to the competent authority empowered to develop and endorse Codex positions.

Disclosure of Interest: *Some experts involved in the development of this analysis contribute to various food safety and nutrition regulatory capacity building initiatives funded by other Governments, aid agencies, industry and international organizations.*

OBJECTIVES

This document offers an analysis of priority agenda items to support participation in the **45th session of the Codex Committee on Methods of Analysis and Sampling (CCMAS45)**, taking place in Budapest, Hungary from **09 to 13 March 2026**.

This document is intended for potential use by the Codex communities of practice promoted by the Global Food Regulatory Science Society (GFoRSS), as part of its contribution to the Arab Codex Initiative. This capacity-building effort seeks to enhance awareness, strengthen technical preparedness, and support effective and informed participation of representatives from Arab and CCNE Member Countries and Observers in international standard-setting processes, including Codex meetings.

This document provides an analysis of selected priority agenda items, identified through a scoring methodology applied by Arab and CCNE Member Countries, with the objective of supporting the development of national and regional positions. The analysis is indicative in nature and is intended for informational purposes only; it does not constitute, nor should it be interpreted as, an official position of the partner organizations, their memberships, or their management.

The analysis presented in this document provides a factual review of key agenda items of CCMAS45, pertaining to:

A. Agenda Item 3.1: Endorsement of Methods of Analysis and Sampling Plans for Provisions in Codex Standards. Methods of analysis and sampling submitted by Codex subsidiary bodies.

Document Number: **CX/MAS 26/45/3**

Status in Codex Process: N/A

Background

In accordance with the *Procedural Manual*, Codex subsidiary bodies (Commodity Committees, General Subject Committees, and Regional Coordinating Committees) must refer proposed:

- Methods of analysis
- Numeric Performance Criteria (NPC)
- Sampling plans

to CCMAS for technical review and endorsement before inclusion in CXS 234-1999 (Recommended Methods of Analysis and Sampling) or before final adoption by the Codex Alimentarius Commission (CAC).

For CCMAS45, referrals originate from CAC48, CCCF18, CCASIA23, CCNE12 and CCSCH8 and invited to retain or to revoke provisions listed in **table 1**.

Table 1: Overview of Endorsement Requests Submitted to CCMAS45 under Agenda Item 3.1.

Codex Body Requesting the Endorsement	What is Requested from CCMAS45
CAC48	Decide whether to **retain or revoke**: • The method for salt saturation in salted fish (Gadidae family). • Associated sample preparation section in CXS 234-1999. • Review the appropriateness of example methods (e.g., AOAC 971.27) linked to NPC for salt/sodium and determine whether they should be retained or replaced.
CCCF18	**Endorse:** • Sampling plans for total aflatoxins (AFT) and ochratoxin A in certain spices. • NPC for AFT using the "sum of components" approach. **Provide clarification** on: • Whether NPC should apply to AFT or individual aflatoxins. • How results (including LOQs) should be reported in databases (e.g., GEMS/Food).
CCASIA23	**Endorse** revised and draft sampling plans in multiple Asian regional commodity standards, including: • Non-fermented soybean products • Other regional commodity standards • Draft standard for quick-frozen dumplings
CCNE12	**Endorsement Request from CCNE12** • Endorse methods of analysis for the Regional Standard for Maamoul.
CCSCH8	**Endorsement Requests from CCSCH8** • Endorse or revoke specific methods in spice standards (e.g., cardamom, turmeric, chilli, cloves). • Decide on endorsement of ISO 927 methods and clarify the principle for endorsement. • Consider whether to revoke an existing Type IV method if ISO 927 is endorsed as Type I. • Endorse methods in draft standards for vanilla, large cardamom, and coriander.

Analysis

For the purpose of this analysis, particular attention is given to the referrals originating from the **Codex Committee on Contaminants in Food (CCCF)**, the **FAO/WHO Coordinating Committee for the Near East (CCNE)**, and the **Codex Committee on Spices and Culinary Herbs (CCSCH)**, as these items are of direct strategic and technical relevance to the CCNE and Arab region.

The proposed sampling plans and numeric performance criteria for mycotoxins in spices (CCCF), the endorsement of methods for the Regional Standard for Maamoul (CCNE), and the analytical provisions in multiple spice standards (CCSCH) all concern commodities of high regulatory, trade, and production importance for Near East and Arab Member countries. A focused review of these items will therefore support coordinated regional positions and ensure that endorsed methods are scientifically robust, practically applicable, and aligned with the analytical capacities of laboratories within the region.

- **Endorsement Requests from CCCF18**

  - **Part A: Sampling plans for total aflatoxins and ochratoxin A in certain spices (i.e. nutmeg, dried chilli and paprika)**

    From a technical perspective, the proposed sampling plans for total aflatoxins and ochratoxin A in nutmeg, dried chilli and paprika appear coherent and aligned with established Codex sampling principles for heterogeneous contaminants such as mycotoxins. The differentiation between whole (large particle), crushed/broken (small particle), and powdered spices is scientifically justified, as particle size significantly influences contaminant distribution and sampling uncertainty. The number of incremental samples (up to 100 for whole and small particle products) and aggregate sample weights (up to 10 kg) are consistent with the need to address high variability in mycotoxin occurrence. Moreover, the acceptance/rejection decision rule (≤ Codex ML) is clear and standard.

  - **Part B. Numeric performance criteria for total aflatoxins and ochratoxin A in certain spices**

    The proposed numeric performance criteria (NPC) for total aflatoxins (AFT) and ochratoxin A (OTA) in chilli pepper, paprika and nutmeg appear technically coherent and proportionate to the established ML of 20 µg/kg. The proposed LOQ (≤ 8 µg/kg) and LOD (≤ 4 µg/kg for AFT/OTA; ≤ 1 µg/kg for individual aflatoxins) ensure adequate sensitivity relative to the ML, while the precision requirement (≤ 44%) is consistent with expected variability at these concentration levels in complex matrices such as spices. The defined applicable range (approximately 0.5–1.5 × ML) and recovery intervals (60–115% for totals; 40–120% for individual aflatoxins) are aligned with Codex and AOAC performance expectations for mycotoxins in challenging matrices.

    At the level of Codex Standard CXS 193, performance criteria for the analysis of aflatoxins are established for regulated matrices in the annexes. The limits are set for total aflatoxins by summing the individual limits, based on an assumed AFB1:AFB2:AFG1:AFG2 ratio of 1:1:1:1. Although the limits of detection (LOD) and quantification (LOQ) for total aflatoxins may appear relatively high, they remain satisfactory when compared to the established maximum limits (MLs), as LOQs are generally below 0.5 × ML.

    However, the limits are presented as the sum of the four individual limits without the necessary clarifications to ensure harmonized application. This summation approach may lead to overestimated limits for total aflatoxins. Moreover, the defined application ranges are considered restrictive, particularly for AFB1, which is typically the predominant aflatoxin. The current approach assumes an equal distribution of AFB1, AFB2, AFG1, and AFG2 (1:1:1:1 ratio), whereas in practice these toxins exhibit different occurrence profiles, with AFB1 generally being more prevalent.

    In order to harmonize interpretation and application, it is recommended to maintain the individual LOD and LOQ limits while providing clear clarification on how limits for total aflatoxins are established. It is further recommended to clarify the basis and implications of the fixed AFB1:AFB2:AFG1:AFG2 ratio (1:1:1:1), and to review the minimum concentration ranges, particularly for AFB1, which is generally the predominant toxin.

    In the absence of explicit and validated data for total aflatoxin LOD and LOQ limits in existing testing standards, it is encouraged to collect data on the limits currently applied by laboratories and the approaches used for their estimation. Where appropriate, experimental estimation of total aflatoxin LODs and LOQs by matrix category could also be undertaken to support evidence-based refinement of the criteria.

- **Part C: Numeric performance criteria for total aflatoxins in certain food matrices**

  The proposed numeric performance criteria for total aflatoxins in peanuts, tree nuts (for further processing and ready-to-eat), and dried figs are technically consistent with the respective MLs (15 and 10 µg/kg). The specified LOD/LOQ values maintain adequate sensitivity relative to the MLs, while the precision (< 44%) and recovery ranges align with established performance expectations for mycotoxin analysis in heterogeneous matrices. Overall, the criteria appear proportionate, analytically achievable, and coherent across commodities with different risk profiles and intended uses.

➢ **Endorsement Request from CCNE12**

The proposed methods of analysis for the Regional Standard for Maamoul are consistent with internationally recognized reference methods (AOAC and ISO) and cover key quality and safety parameters (extraneous matter, pH, water activity, and moisture) using well-established analytical principles. The classification of methods (Types I, II, and IV) appears appropriate and aligned with CXS 234-1999 structure. As these methods were reviewed and supported during CCNE12, their referral for endorsement reflects prior regional consensus, and no technical inconsistencies are apparent at this stage.

➢ **Endorsement Requests from CCSCH8**

Overall, the requests from CCSCH8 are largely technical updates aimed at improving consistency, objectivity, and international harmonization of analytical methods in spice standards. The proposed replacement of certain methods (e.g., ISO 3513 by ASTA 21.3 for pungency in chilli and paprika; MPM V-8 by ISO 927 for visible mould in cloves) reflects a shift toward more objective, instrument-based or internationally recognized ISO methods, which is analytically justified. The widespread use of ISO 927 for extraneous/foreign matter across multiple commodities enhances methodological coherence within CXS 234-1999. The proposed revocation of ISO 3513 (sensory-based) is consistent with the preference for reproducible analytical methods.

Recommendations

Considering the analysis of requests from CCCF18, CCNE12, and CCSCH8 under Agenda Item 3.1, the following recommendations may guide coordinated regional engagement at CCMAS45:

- Support endorsement of CCCF sampling plans and NPC for mycotoxins in spices and nuts, as they are scientifically coherent, proportionate to MLs, and aligned with established Codex analytical principles.
- Encourage clarification on the “sum of components” approach for total aflatoxins, particularly regarding harmonized LOQ determination and reporting, to ensure consistency in regional data submission.
- Reiterate support for the methods proposed for the Regional Standard for Maamoul, reflecting the consensus already expressed during CCNE12.
- Support endorsement and updating of methods proposed by CCSCH, including replacement of sensory methods with more objective analytical techniques and broader use of internationally recognized ISO methods.
- Encourage Member countries to assess laboratory readiness, especially regarding required LOQs and handling of larger aggregate samples, to ensure effective implementation of endorsed provisions.

B. Agenda Item 4.1: Review of Methods of Analysis in Commodity Standards (Fish and Fishery Products, Fats and Oils, Cereals, Pulses and Legumes and Derived Products)

Document Number: **CX/MAS 26/45/4**

Status in Codex Process: N/A

Background

Following the reaffirmation that CXS 234-1999 shall serve as the single reference for Codex methods of analysis, a systematic review of commodity standards was undertaken in work packages covering:

- Fish and Fishery Products (FFP)
- Fats and Oils (FO)
- Cereals, Pulses and Legumes (CPL)

Based on the review conducted under MAS44/CRD02 Rev.1 (Annex III, Tables 1, 2, 6, 7 and 8), Annex I of the working document was structured into two parts:

- **Part I**: Proposed amendments and deletions to CXS 234-1999.
- **Part II**: Consequential amendments to relevant commodity standards following consultation with the Codex Secretariat.

The regional expert working group considers this structured approach transparent and supportive of regulatory coherence.

Analysis

1-Methods Already Included in CXS 234 (Annex II)

The regional expert working group supports maintaining methods already included in CXS 234 without modification where they:

- Remain technically valid,
- Are internationally validated (ISO, AOAC, AOCS),
- Are widely implemented in accredited laboratories.

However, the regional expert working group emphasizes the importance of ensuring that references correspond to the latest available versions.

2-Fish and Fishery Products

Recognizing the economic importance of fisheries in both regions, the necessity of robust analytical methods is underlined for:

- Moisture,
- Total nitrogen/protein,
- Total fat,
- Oxidation indicators (e.g., peroxide value),
- Contaminants (e.g., mercury).

The regional expert working group highlights the importance of matrix-specific validation (e.g., fresh, frozen, dried, smoked, canned products), while also emphasizing the need for clarity in method presentation to avoid ambiguity in practical implementation. It further expresses support for the continued endorsement of internationally validated and proficiency-tested methods.

3-Fats and Oils

The regional expert working group supports the EWG's recommendations concerning fats and oils, particularly for:

- Acid value,
- Peroxide value,

- Iodine value,
- Soap content.

Regarding ISO 10539 / AOCS Cc 17-95 for soap determination, it is noteworthy to mention that the method is already included in CXS 234 and therefore does not require amendment.

It is further important to highlight the importance of maintaining methodological flexibility in chromatographic techniques (e.g., HPLC detection systems), avoiding unnecessary specification of detector types where alternative validated options (e.g., fluorescence detection) may provide higher sensitivity.

The regional expert working group emphasizes the relevance of these methods for fraud detection, quality assurance, and consumer protection.

4-Cereals, Pulses and Legumes

With regard to:

- CXS 200-1995
- CXS 201-1995

The difficulty in identifying internationally validated methods for provisions currently marked as “Under development” or “To be determined” is to be acknowledged.

The regional expert working group agrees with the cautious decision not to reference national regulatory documents within CXS 234 due to:

- Risk of regulatory misinterpretation,
- Lack of international validation,
- Inconsistency with Codex’s global mandate.

It encourages international collaboration among Standard Developing Organizations (SDOs) to develop performance-based, validated methods to address these analytical gaps.

5-Unresolved Methods (Annex III)

The group recognizes that certain provisions remain without internationally validated methods.

It notes that some SDO members expressed willingness to develop oat-specific methods in the future. It is to be stressed that any such development must include:

- Clearly defined performance criteria,
- Inter-laboratory validation,
- Full compliance with CCMAS endorsement procedures.

For peanuts, the group highlights the urgency of developing appropriate validated methods due to their food safety and trade significance.

6-Moisture Determination and AOAC 950.46B

The group notes the reference to AOAC 950.46B (Air Drying method) and relevant commodity standards such as CXS 222-2001 where applicable.

It emphasizes that moisture determination methods must be carefully assessed for:

- Matrix suitability,
- Applicability to raw versus processed products,
- Alignment with updated ISO equivalents.

7-Future Electronic Database of CXS 234

The group supports the proposal to consider displaying analytical methods per commodity in the future electronic database of CXS 234 instead of grouped entries, with the belief that this would:

- Improve searchability,
- Reduce risk of misapplication,

- Enhance clarity for regulatory authorities,
- Support digital laboratory management systems.

The group underlines the value of clarity in presentation, while highlighting operational benefits for official control laboratories.

Conclusion

The regional expert working group commends the EWG for fulfilling its mandate and advancing harmonization of analytical methods under CXS 234-1999.

The group reaffirms that Codex method endorsement must remain grounded in:

- International scientific validation,
- Performance-based criteria,
- Transparency,
- Practical feasibility for accredited laboratories.

While significant progress has been achieved, analytical gaps remain in specific provisions of CXS 200-1995 and CXS 201-1995. Addressing these gaps should remain a priority.

Joint Recommendations

Member countries may recommend that CCMAS45:

1. Adopt the proposed amendments and deletions under Annex I.
2. Confirm that methods listed in Annex II require no modification.
3. Encourage accelerated international development of validated methods for unresolved provisions in peanuts and oats.
4. Provide guidance on the optimal presentation of analytical methods in the future electronic database of CXS 234.

Ensure that endorsed methods remain scientifically robust and operationally applicable for official control laboratories worldwide.

C. Agenda Item 5.1: Review of Methods of Analysis in CXS 234 (Fruit Juices Workable Package)

Document Number: **CX/MAS 26/45/6**

Status in Codex Process: N/A

Background

As part of its ongoing review of methods in the Recommended Methods of Analysis and Sampling (CXS 234-1999), CCMAS has continued the revision of the fruit juices "workable package," in alignment with the General Standard for Fruit Juices and Nectars (CXS 247-2005). Following earlier work by an EWG chaired by Germany and discussions at CCMAS44, an expert group convened under the International Fruit and Vegetable Juice Association (IFU) further assessed the relevance and fitness-for-purpose of the listed methods.

The expert group confirmed that the rationale applied in 2005, when CXS 247 was adopted, remains valid today. Ongoing cases of fruit juice adulteration highlight the continued need for internationally approved methods to support governments in preventing misrepresentation and protecting consumers.

Out of 56 methods assessed, 52 were considered fit-for-purpose and recommended for retention or transfer to CXS 234-1999. Four methods were proposed for revocation, as they are no longer supported by their originating SDOs or are no longer used in official control. Two pH methods currently listed separately were found to be technically identical and should be grouped under shared nomenclature. In contrast, some methods previously listed under the same provision are now technically distinct (e.g., different HPLC column types) and should no longer share joint nomenclature; CCMAS is invited to consider classifying them as Type II and Type III procedures, respectively.

Regarding enzymatic methods, the group noted that several kits used in earlier collaborative trials are no longer commercially available, and concerns remain about kit specificity. As these methods relate to critical authenticity parameters and no validated HPLC alternatives are currently available, the expert group recommended postponing a decision until CCMAS46 (2027) to allow further evaluation.

Finally, while AOAC, IFU, and NMLK methods were reviewed in full, ISO methods could not be assessed due to lack of access. Consequently, CCMAS may wish to consider not retaining or not transferring those ISO methods to CXS 234-1999 until proper evaluation is possible.

CCMAS45 is therefore invited to endorse the proposed revocations, retentions, amendments, and temporary deferrals as outlined in the relevant appendices, and to decide on the status of the ISO-related methods pending further review.

Analysis

Appendix I reflects a structured and technically robust consolidation of analytical methods applicable to fruit juices and nectars, with a clear emphasis on authenticity control, additive verification, and quality criteria under General Standard for Fruit Juices and Nectars (CXS 247-2005) and their alignment within Recommended Methods of Analysis and Sampling (CXS 234-1999).

1. **Rationalization and Clean-Up of the Method List**

   The proposed revocations target methods that are no longer supported by their originating SDOs, lack validation data (e.g., certain precipitation or photometric procedures), or are no longer used in official control. This strengthens the scientific credibility of CXS 234 and reduces redundancy. The approach is consistent with CCMAS' mandate to maintain only validated, operational, and internationally supported procedures.

2. **Harmonization of Overlapping Methods**

   Several amendments address duplication and nomenclature inconsistencies. For example:

   - Identical pH methods written by different SDOs are proposed to be grouped under common nomenclature.
   - Methods previously sharing joint notation ("/") are being separated where technical differences now exist (e.g., different HPLC column types), with reclassification as Type II or Type III.

   This improves clarity in method classification and avoids ambiguity in regulatory enforcement.

3. **Strong Focus on Authenticity and Adulteration Detection**

   A significant proportion of retained methods relate to authenticity verification, including:

- Stable isotope ratio methods (IRMS) for detecting C4 sugars, beet sugar, or geographic origin,
- HPLC-based profiling of sugars, organic acids, flavonoids, and markers such as benzoic acid,
- Capillary GC methods for High Fructose Corn Syrup (HFCS) and hydrolyzed inulin syrups,
- NMR methods for detecting beet sugar.

This reflects the continued relevance of authenticity control in light of ongoing adulteration issues and confirms the expert group's view that the original 2005 logic remains technically justified.

4. **Kit-Based and Enzymatic Methods – Transitional Sensitivity**

   The Appendix indirectly highlights a regulatory sensitivity: some enzymatic or kit-dependent methods were validated decades ago, and commercial kit composition has evolved. The absence of fully validated chromatographic alternatives for certain authenticity parameters creates a temporary methodological gap. The proposed postponement to CCMAS46 is technically prudent to avoid removing critical control tools without suitable replacements.

5. **Retention of Classical Reference Methods**

   Type I reference methods (e.g., titrimetry, gravimetry, refractometry, Monier-Williams for SO_2) are largely maintained. While older, these methods remain operationally accessible for control laboratories worldwide and provide enforcement stability, particularly for countries with limited access to advanced instrumentation.

6. **Instrumentation-Intensive Methods – Capacity Implications**

   The retention of IRMS, NMR, HPLC-UV/RI, GC-FID, and AAS methods confirms the increasing reliance on advanced instrumentation for authenticity control. While scientifically sound, this has implications for laboratory capacity in developing regions and may require targeted capacity-building efforts to ensure equitable implementation.

Appendix II lists four methods recommended for revocation from General Standard for Fruit Juices and Nectars (CXS 247-2005) and not to be transferred to Recommended Methods of Analysis and Sampling (CXS 234-1999).

The common technical rationale is the absence of continued support from the originating Standards Development Organizations (SDOs) or insufficient validation:

- The HPLC method for vitamin C (EN 14130) and the stable hydrogen isotope ratio method (ENV 12142) are no longer supported by CEN.
- The carbon dioxide titrimetric method (IFU 42) is no longer supported by IFU.
- The pectin method (IFU 26), based on precipitation/photometry, lacks adequate validation data.

From a technical perspective, the revocations reflect a quality-control exercise to ensure that Codex standards reference only validated, maintained, and institutionally supported methods. The removal does not necessarily invalidate the analytical principles themselves (e.g., HPLC, isotope ratio MS) but rather acknowledges that the specific standardized procedures are outdated or insufficiently supported.

Appendix III lists methods that will remain in Recommended Methods of Analysis and Sampling (CXS 234-1999) and/or General Standard for Fruit Juices and Nectars (CXS 247-2005) on a temporary basis, pending further technical evaluation.

These methods are predominantly enzymatic procedures, many of which were originally validated using specific commercial kits that have since evolved or are no longer available. Given their importance for authenticity and quality verification (e.g., organic acids, sugars, ethanol, SO_2), and the absence of fully validated alternative reference methods in some cases, the expert group did not recommend immediate endorsement or revocation.

Their retention is therefore precautionary, ensuring continuity of control while allowing additional technical review before a final decision is taken at a future CCMAS session.

Recommendations

In the context of the revision and harmonization of fruit juice methods under Recommended Methods of Analysis and Sampling (CXS 234-1999) and General Standard for Fruit Juices and Nectars (CXS 247-2005), the following considerations may be relevant for CCNE and Arab Member countries:

1. **Support the rationalization and revocation of obsolete methods**

   The region may support the removal of methods no longer validated or supported by their originating SDOs, as this strengthens scientific credibility and ensures that only internationally maintained procedures remain in Codex texts.

2. **Emphasize the importance of authenticity control**

   Given the regional importance of fruit juice trade and vulnerability to adulteration, Member countries may underline the continued relevance of stable isotope, chromatographic, and marker-based methods for detecting added sugars, syrups, or misrepresentation.

3. **Request clarity on kit-based enzymatic methods**

   For methods retained pending further review (Appendix III), the region may encourage:
   - Clear guidance on performance characteristics independent of specific commercial kits,
   - Consideration of method equivalence criteria,
   - Transparency regarding validation requirements for updated kits.

4. **Highlight capacity implications**

   Advanced techniques such as IRMS, NMR, and multi-residue HPLC/GC methods may not be widely available across all Arab/CCNE countries. The region may:
   - Encourage capacity-building initiatives,
   - Request clarification on minimum performance criteria to allow methodological flexibility,
   - Promote regional laboratory cooperation and reference laboratory networks.

5. **Encourage access to ISO methods for full evaluation**

   As some ISO methods were not reviewed due to lack of access, Arab/CCNE Members may support ensuring that full technical assessment is conducted before final decisions are taken.

D. Agenda Item 5.3: Review of Methods of Analysis in CXS 234: Honey & Sugar Workable Package

Document Number: **CX/MAS 26/45/8**

Status in Codex Process: N/A

Background

At CCMAS44 (2025), the Committee agreed to initiate the review of analytical methods in the **Sugars and Honey package** as part of the ongoing systematic update of the Recommended Methods of Analysis and Sampling (CXS 234-1999).

An Electronic Working Group (EWG), chaired by Uruguay, was established to review the relevant methods in:

- CXS 212-1999 (Sugars), and
- CXS 12-1981 (Honey).

This review follows the standard CCMAS approach:

- Remove inconsistencies.
- Ensure alignment with the Procedural Manual and endorsement guidance.
- Verify that methods remain fit for purpose.
- Clarify typing (Type I–IV).
- Ensure that all required methods in commodity standards are properly reflected in CXS 234-1999.

Since the Codex Committee on Sugars (CCS) is adjourned *sine die*, CCMAS is effectively handling the technical updating of these standards.

The EWG conducted:

- A consistency review of methods already in CXS 234.
- A cross-check between the commodity standards and CXS 234 to identify missing or misaligned methods.
- Editorial consolidation and simplification of method listings.

Several technical matters were identified, including:

- The measurement approach for invert sugar content.
- Suitability and sensitivity of sulphur dioxide methods.
- Replacement of outdated AOAC methods (notably for honey authenticity via SCIRA).
- Missing or pending methods in certain provisions.
- Alignment challenges between ICUMSA classifications, regulatory systems, and Codex commodity descriptions.

The EWG produced recommendations regarding retention, amendment, inclusion, or revocation of specific methods, and identified additional items requiring future review.

CCMAS45 is invited to:

1. **Endorse the EWG recommendations** on methods (retain, amend, include, or revoke) as summarized in Appendix I, taking into account specific technical comments.
2. **Note that certain methods (e.g., sugar content, electrical conductivity, starch content)** will not be included in CXS 234-1999 at this time.
3. **Agree to replace AOAC 991.41 with AOAC 998.12** for SCIRA “stable carbon isotope ratio analysis” (honey authenticity) which will not be included in CXS 234-1999 and revoke AOAC 991.41 from CXS 12-1981.
4. **Re-establish the EWG** to address outstanding technical issues and inaccessible or insufficiently reviewed methods.

Analysis

Appendices I, II and III operationalize the EWG's review by translating it into concrete changes to CXS 234-1999 (retain / include / amend / revoke), focused only on what will ultimately appear in the standard (Commodity–Provision–Method–Principle–Type).

1) Overall direction of the revisions

- The EWG is aiming to clean up and modernize the sugars and honey method listings in CXS 234 by:
    - Updating outdated references and replacing superseded methods.
    - Introducing newer or more widely recognized methods where appropriate.
    - Clarifying method typing (Type I–IV) to align with CCMAS endorsement logic.
    - Consolidating duplicated entries and improving consistency of commodity/provision wording.

2) Proposed changes

- **Honey**: the proposed edits show a push toward ensuring that core honey parameters and authenticity-related testing are supported by methods that are current, recognized, and consistently typed in CXS 234.
- **Sugars**: revisions emphasize harmonization with widely used standard-setting bodies and better alignment between Codex provisions and what methods actually determine (i.e., preventing ambiguity about what is being measured vs. how it is expressed).
- Across both commodities, the EWG is treating method replacement as a normal housekeeping action, especially where a referenced method has been superseded, rather than reopening the technical basis of standards.

3) Where CCMAS45 attention is likely needed (strategic, not technical)

Without diving into methods themselves, the appendices signal a few areas that CCMAS45 may need to steer at a policy/process level:

- **Managing transitions:** Several provisions appear to be in a "transition posture" (older approaches retained while newer approaches are introduced as alternatives). CCMAS45 may need to guide how to manage coexistence (e.g., when dual pathways are acceptable and when they create confusion).
- **Authenticity / fraud-related methods:** The appendix confirms a clear movement toward updated authenticity tools for honey, with older references being replaced. CCMAS45 may wish to ensure these updates are consistent with Codex's broader direction on fraud/authenticity work.
- **Performance/fitness considerations:** Some entries are being kept "for now" pending better access, validation, or consensus, indicating that CCMAS45 may need to decide what to endorse now vs. defer.

4) Practical limitation flagged by the EWG

Appendix II highlights that for a subset of methods, the EWG could not access the references or did not receive comments. This creates a procedural issue: endorsement confidence is uneven across the package, which supports the case for:

- deferring certain entries, and/or
- re-establishing the EWG to close gaps.

Recommendations

1. **Agree to endorse the EWG recommendations** on methods (retain, amend, include, or revoke) as summarized in Appendix I.
2. **Support not to include** certain methods (e.g., sugar content, electrical conductivity, starch content) in CXS 234-1999 currently.
3. **Agree to replace AOAC 991.41 with AOAC 998.12** for SCIRA "stable carbon isotope ratio analysis" (honey authenticity) and to include this method in CXS 234-1999 replacing AOAC 998.18 and agree to revoke AOAC 991.41 from CXS 12-1981.
4. **Agree Re-establish the EWG** to address outstanding technical issues and inaccessible or insufficiently reviewed methods.

E. Agenda Item 6: Methods of Analysis for Precautionary Allergen Labelling

Document Number: **CX/MAS 26/45/9**

Status in Codex Process: N/A

Background

The Codex Committee on Food Labelling (CCFL) revised the **General Standard for the Labelling of Prepackaged Foods (CXS 1-1985)** to include an agreed list of priority allergens (e.g., gluten-containing cereals, crustacea, eggs, fish, peanuts, milk, sesame, and specific tree nuts). In the context of developing guidance on precautionary allergen labelling and threshold-based risk management, CCFL requested input from CCMAS on analytical methods capable of detecting and quantifying unintended allergen presence (UAP) relative to the reference doses established by FAO/WHO expert consultations.

In response, an Electronic Working Group (EWG) under CCMAS compiled methods currently in use across Members and evaluated their validation status against internationally recognized guidelines (e.g., AOAC and EN standards). The work focused on assessing whether available methods are fit for purpose in relation to relevant action levels, while considering validation rigor, analytical range, matrix effects, and method limitations.

At CCMAS44, discussions highlighted key technical considerations, including the widespread reliance on proprietary ELISA kits, variability in validation data, matrix-dependent performance, conversion to total allergenic protein units, and the need to ensure that analytical measurement ranges align with established threshold levels. It was also emphasized that listing methods does not imply endorsement and that suitability must be demonstrated on a case-by-case basis.

CCMAS45 is now invited to consider a draft response to CCFL, including tables summarizing available methods and their validation status, and to determine whether further development of numeric performance criteria for allergen detection methods should be explored in the future.

Analysis

The draft response from CCMAS to CCFL adopts a cautious and technically balanced approach. It clarifies that the listed methods are not being endorsed but are compiled to inform CCFL on currently used analytical approaches that meet recognized validation guidelines (AOAC/EN). The response appropriately emphasizes fitness-for-purpose relative to action levels (ALs), matrix effects, analytical range, LOQ considerations, unit harmonization, and validation variability, while also acknowledging trade implications linked to proprietary methods. The numerous caveats reinforce that method suitability must be assessed case-by-case and that listing does not imply equivalence or endorsement.

Tables 1 and 2, which categorize methods by validation status, constitute the technical core of the response. From an analytical perspective, the LOQs reported in Table 1 are generally low and appear technically suitable in relation to the FAO/WHO reference doses and corresponding action levels (ALs), particularly for high-potency allergens (e.g., peanut, egg, milk), where LOQs in the range of 0.31–1 mg/kg provide an adequate margin below typical ALs. For gluten, most ELISA methods demonstrate LOQs between 1–5 mg/kg, which is mostly compatible with reference dose–based ALs. The reported LOQs for crustacea (0.31–0.66 mg/kg) also appear analytically appropriate, assuming correct protein conversion factors are applied.

However, variability in LOQs across kits for the same allergen highlights the importance of ensuring that the selected method's LOQ is sufficiently below the relevant AL (ideally by a safety margin, e.g., factor of ~3, as noted in the draft response). Additionally, differences in reporting units (e.g., wheat protein vs gluten vs total allergenic protein) require careful standardization to ensure comparability against ALs. Overall, the LOQs in Table 1 appear broadly fit for purpose, but their adequacy remains dependent on the specific AL, food matrix, and reference amount considered.

Table 2 includes methods with generally adequate analytical sensitivity (many LOQs ≤ 1 mg/kg proteins for high-potency allergens such as cashew, walnut, sesame, milk, and peanut), suggesting potential technical suitability relative to typical action levels. However, unlike Table 1, these methods lack multi-laboratory validation or performance-tested status, with most relying on manufacturer or in-house validation only. This introduces greater uncertainty regarding interlaboratory reproducibility, matrix robustness, and comparability across trading partners. Variability in LOQs and reporting units (whole food vs protein; specific proteins such as β-lactoglobulin or lysozyme vs total protein) further emphasizes the need for careful alignment with action levels and standardized unit conversion. Overall, while the LOQs appear broadly compatible with precautionary allergen labelling needs, the limited independent validation represents the main analytical limitation of the methods in Table 2.

Recommendations

Considering the draft CCMAS response to CCFL and the review of Tables 1 and 2, the following considerations may guide coordinated regional engagement:

- **Support forwarding the draft response to CCFL**, recognizing that it appropriately clarifies that listed methods are provided for information and are not endorsed, and that suitability must be demonstrated case-by-case.
- **Emphasize fitness-for-purpose relative to action levels (ALs)**, ensuring that selected methods have LOQs sufficiently below the relevant AL and analytical ranges that cover the required concentration levels.
- **Encourage harmonized reporting units**, preferably expressed as mg total protein from the allergenic source per kg food, to facilitate consistent interpretation and trade.
- **Highlight matrix and processing effects**, stressing the need for laboratories in the region to verify method performance in locally relevant food matrices.
- **Acknowledge trade and accessibility implications**, particularly the reliance on proprietary ELISA kits and the importance of ensuring method availability across regions.
- **Encourage CCMAS to remain open to future discussion on performance-based criteria**, should CCFL request further work in this area.

F. Agenda Item 7.1: Review of Sampling Plans in CXS 234-1999

Document Number: **CX/MAS 26/45/10**

Status in Codex Process: N/A

Background

- At its 44th Session (CCMAS44, 2025), CCMAS initiated discussions on the need to review the sampling plan information contained in CXS 234-1999.
- While CXS 234 serves as the single reference for analytical methods in Codex standards, the format, location, and presentation of sampling plan information have not been reviewed comprehensively in light of evolving needs and the planned development of an electronic database.

Purpose of the Discussion Paper

- The current discussion paper was developed by an Electronic Working Group (EWG), led by New Zealand and Germany, to explore how sampling plan information should be structured and integrated within the Codex system.
- The review recognizes that sampling plans play a critical role in ensuring harmonization of Codex standards, facilitating international trade, and preventing disputes by providing fair and scientifically valid inspection procedures.
- In this regard, it was noted that, similar to analytical methods, each provision should ideally have a clearly designated sampling plan.

Options Considered

- During consultations, four possible approaches were identified regarding where and how sampling plan information should be located within the Codex framework.
- The approaches ranged from maintaining and improving sampling information within CXS 234-1999 to developing separate standards at the commodity-group level.
- The EWG examined the advantages and limitations of each approach, including considerations related to user-friendliness, transparency, maintenance, and consistency.

Consultation Process & Results

- The consultation process included participation from 18 Members and three Observers.
- Detailed comments were received from several Members.
- There was general support for maintaining sampling plan information together with analytical methods in a single reference document, preferably within a searchable electronic database.
- This approach was considered the most practical and user-friendly.
- However, the option of developing commodity-group-specific standards for sampling plans also remains open for further discussion.

Broader Issues Identified

- The EWG identified broader issues requiring attention, including:
    - Defining the content and structure of a future database.
    - Determining how existing sampling information would be migrated into the new system.
    - Clarifying responsibilities for selecting appropriate sampling plans for specific commodity/provision combinations.
- It was recognized that many commodity committees are currently adjourned sine die, which may create challenges in developing or updating sampling plans.
- CCMAS may need to consider how it can support commodity committees in this area.

Next Step

- The EWG has completed its mandate and submitted the revised discussion paper for consideration at CCMAS45.

What is Requested from CCMAS45

CCMAS45 is invited to:

- Consider the options presented for the inclusion and organization of sampling plan information, with particular attention to:
    - Including all sampling plan information in CXS 234-1999; or
    - Developing standards at the commodity-group level while maintaining sampling plan details in a central repository or database.
- Decide on the way forward, including:
    - The type of information to be included.
    - The structure and functionality of a potential database tool.
    - How existing information would be incorporated and maintained.
    - How non-standard elements (e.g., footnotes, comments) should be handled.
- Consider how CCMAS could assist in the development of sampling plans where they do not currently exist.
- Consider the establishment of a new EWG to continue technical discussions on database structure, content migration, system functionality, and ongoing maintenance.

Analysis

The discussion paper does not yet enter into detailed technical design of sampling plans. Rather, it addresses a structural and governance question:

Where and how should sampling plan information be located within the Codex system?

Currently, sampling information in CXS 234-1999 (Part B) is limited, inconsistently structured, and often confused with physical sampling procedures rather than full sampling inspection plans. A review of Codex standards shows that most standards either contain no sampling information or refer to outdated or incomplete references. This situation undermines harmonization and creates potential inconsistencies in implementation.

The core principle reaffirmed in the paper is that, just as each provision has a designated analytical method, it should also have a clearly designated sampling inspection plan. Therefore, the current fragmented system needs reform.

In this context, CCMAS45 is primarily invited to decide the preferred structural approach for advancing this work, specifically:

Option 1

Include all sampling plan information in CXS 234-1999 (as a single reference), ideally within a searchable electronic database integrating methods and sampling plans.

Option 4

Develop separate “meta-standards” for each commodity group describing sampling plans, while still maintaining sampling details in a central repository or database.

Options 2 and 3 are presented but have less support and greater administrative burden.

The EWG showed a clear preference for **Option 1**, as it would maintain CXS 234 as the single consolidated reference and would be more user-friendly, especially if supported by a modern database format.

At this level, CCMAS45 is asked to:

1. Agree on the structural direction (Option 1 or Option 4).
2. Provide general guidance on the way forward.

3. Consider whether CCMAS should play a stronger role in supporting commodity committees in developing sampling plans.
4. Consider establishing a new EWG to continue detailed work.

Beyond the structural choice, a broader governance question arises:

- Commodity committees are responsible for standards and thus logically for sampling plans.
- However, many committees are inactive or lack statistical expertise.
- CCMAS endorses sampling plans but may lack authority to determine risk levels without commodity committee input.

Recommendations

1. Support a Single Consolidated Reference (Option 1)

The Member countries may support:

Option 1 – Inclusion of all sampling plan information in CXS 234-1999, ideally through a searchable electronic database integrating methods of analysis and sampling plans.

Rationale:

- Ensures consistency with the principle that CXS 234 is the single reference.
- More user-friendly and transparent.
- Reduces fragmentation across standards.
- Avoids the administrative burden of revising all commodity standards.

2. Support Development of a Database Tool

The Member countries may support:

- Development of a modern, searchable database for methods and sampling plans.
- Clear presentation linking each provision to:
    - The analytical method.
    - The corresponding sampling plan.

However:

- Emphasize gradual implementation.
- Avoid creating unnecessary complexity at this stage.

3. Clarify Responsibilities

The region may recommend:

- Commodity committees remain responsible for defining sampling requirements for their provisions.
- CCMAS can provide technical /statistical support and assist in identifying priority areas and endorsing sampling plans
- Clear guidance be developed on division of responsibilities.

4. Support Establishment of a New EWG

Member countries may support:

- Establishing a new EWG to:
    - Define the database structure,
    - Clarify minimum required sampling information,

Develop practical implementation steps.

G. Agenda Item 7.2: Sampling Plans for Bulk Materials/Heterogenous Lots Including Mycotoxins

Document Number: **CX/MAS 26/45/11**

Status in Codex Process: N/A

Background

At CCMAS44 (2025), the Committee considered both the broader review of sampling plans in CXS 234-1999 and a specific proposal to develop guidance on sampling plans for bulk and heterogeneous lots, particularly in relation to mycotoxins.

The proposal arose from longstanding concerns expressed by delegates that existing sampling approaches, especially for bulk materials, may not adequately address the risks associated with uneven contamination. In heterogeneous lots, contamination can occur in localized "pockets." Testing a single composite sample may average out contamination levels, potentially resulting in acceptance of a lot that contains harmful concentrations in specific portions.

The discussion paper highlights technical limitations of current approaches and notes that alternative methodologies, including Bayesian approaches, may be more appropriate for certain risk scenarios. A review of sampling plans in the General Standard for Contaminants and Toxins in Food and Feed (CXS 193-1995) identified potential shortcomings that warrant further examination.

An Electronic Working Group (EWG) was established and developed a discussion paper proposing that general guidance for acceptance sampling plans for bulk, heterogeneous materials, particularly mycotoxins, be developed. It was suggested that such guidance could be incorporated as an annex to the General Guidelines on Sampling (CXG 50-2004), as this would provide formal Codex status and support commodity committees and competent authorities.

The work is intended to be conducted in close collaboration with the Codex Committee on Contaminants in Food (CCCF), and CCMAS' mandate to elaborate sampling plans and provide technical support to other committees was reaffirmed during discussions.

CCMAS45 is invited to:

- Consider whether to initiate new work to develop general guidance for acceptance sampling plans for bulk and heterogeneous lots, with a particular focus on mycotoxins.
- Decide on the appropriate format for such guidance (e.g., as an annex to CXG 50-2004 or another Codex instrument).
- Inform CCCF and other relevant committees of the discussions and request their views on the need and scope of such guidance.

Analysis

This discussion paper responds to repeated interest raised during work on CXG 50 (General Guidelines on Sampling) to improve Codex guidance on acceptance sampling for bulk, heterogeneous lots, with a particular focus on mycotoxins. The paper argues that the current Codex framework does not yet provide sufficient, fit-for-purpose guidance for commodities where contamination can be unevenly distributed, which increases the risk of misclassification (accepting non-compliant lots or rejecting compliant ones).

A central message is that some existing sampling plans for mycotoxins (notably those referenced in CXS 193) were developed using statistical parameters derived from contaminated lots and frameworks that do not fully reflect real-world heterogeneity patterns. While this does not necessarily invalidate existing plans, it creates uncertainty about whether risks are properly characterized, communicated, or optimized for different contamination scenarios. The paper also notes that currently available tools used for risk evaluation may not capture key drivers of plan performance for heterogeneous bulk lots, which limits the ability to confidently assess the operating characteristics of the plans.

Rather than proposing immediate changes to existing Codex sampling plans, the document is positioned as a scoping and justification paper for further work. It proposes a structured future project to (i) make better use of newer and more representative datasets, (ii) improve the evaluation of risks associated with current plans, (iii) explore more efficient approaches to plan design that balance risk and inspection burden, and (iv) develop practical outputs such as guidance material and decision-support tools. The overall intent is to strengthen Codex's capacity to provide credible, consistent sampling guidance for bulk materials where heterogeneity is a defining feature.

The paper also highlights an important governance point: commodity committees are responsible for their standards and sampling plans, but many committees face limited statistical capacity or are inactive. As a result, there is an implied need for CCMAS to provide technical leadership and support, in close collaboration with CCCF, to ensure that any future guidance is scientifically robust and usable across committees and competent authorities.

General comments:

- **General Comment 1 – Implications for Existing Plans (CXS 193) and Regionally Relevant Commodities**
  - The working document highlights that existing sampling plans for mycotoxins in CXS 193 were developed based on theoretical assumptions of homogeneity.
  - The paper points out uncertainties regarding their ability to adequately reflect the risks associated with heterogeneous lots, in which contamination may be concentrated in localized "pockets" distributed in a non-uniform manner, with significant variability depending on the commodity matrix under consideration.
  - For commodities of regional importance such as cereals, tree nuts, oilseeds, dried fruits, spices, and animal feed, this finding raises questions about the adequacy of current approaches to ensure both consumer protection and the avoidance of false rejections, with their potentially significant economic repercussions. Future work could therefore enable the development of alternative approaches based on actual risk, particularly for high-risk commodities. This would allow for resource optimization and the reduction of destructive controls for lower-risk products where heterogeneity is confirmed but at non-significant risk levels (at the increment level or contamination per unit/seed level).
- **General Comment 2 – Practical Feasibility for Ports and Regional Inspection Systems**
  - At the regional level, mycotoxin sampling has always had significant practical implications for border control systems and national inspection programs.
  - A potential increase in the number of increments or the introduction of complex and time-consuming sampling approaches would result in a substantial operational and financial burden for control services, particularly in countries with limited technical capacity. It is therefore essential that any future Codex guidance take operational feasibility into account, particularly with respect to ease of implementation and harmonization of practices.
  - The development of practical computerized decision-support tools, as well as simplified guidance documents, is necessary to ensure effective implementation without negatively affecting the smooth flow of trade.
- **General Comment 3 – Consistency with Regional Contaminant Priorities and Capacity Constraints**
  - The focus on sampling plans, particularly for mycotoxins and heterogeneous bulk commodities, is consistent with regional food safety priorities, given the importance of cereals, nuts, and dried products in consumption patterns and international trade. However, the technical and financial capacity constraints faced by several countries in the region must be taken into consideration in the development of new guidance.
  - Future plans should be sufficiently clear and simplified to enable harmonized implementation and should be accompanied by capacity-building measures. This would allow competent authorities to implement the new guidance without creating disruptions to trade flows.
- **General Comment 4 – External Factors and Data Representativeness**
  - Lack of consideration for the risks associated with variability in extrinsic factors (climatic factors) between countries and their impact on the representativeness of contamination data and the risks associated with sampling between countries.
- **General Comment 5 – Gaps in Preparatory and Analytical Data**
  - Lack of information regarding analytical performance by method and by matrix group, taking into account the complexity of matrices, especially those with high oil content (peanuts, pistachios, hazelnuts, sesame seeds, etc.).

- Lack of important information concerning the preparation and grinding methods (particle size and therefore homogeneity of the laboratory sample) prior to extraction and analysis.

- **General Comment 6 – Implementation Data for Current Sampling Plans**
  - Lack of data related to compliance with the current sampling plan of the general codex standard, the size of the characterized batch, the overall sample size, and the incremental and laboratory sample.
- **General Comment 7 – Distribution Patterns and Risk Assessment at Low Levels**
  - The impact of the heterogeneous distribution phenomenon (global, incremental, and per seed) particularly at low contamination levels, and the importance of establishing a well-defined target concentration range for data analysis and risk assessment related to sampling.
  - The importance of moving beyond reliance on Maximum Limits (MLs) alone to considering actual contamination levels for better risk quantification (false positives/false negatives), with emphasis on the evolving biological nature of contamination levels.

Specific comments

- **Technical comment 1 – CCMAS and CCCF Coordination:** Requests clarification on the specific roles of CCMAS and CCCF in developing this guidance. A clear definition of responsibilities is needed to avoid duplication, e.g., CCMAS on statistical framework, CCCF on risk levels based on toxicology. (Paragraph 6 & 13: page 1 & 2)
- **Technical comment 2 – Introduction and Objectives:** Acknowledges the EWG's efforts led by NZ/DE and recognizes the technical challenge of sampling for mycotoxins due to heterogeneous distribution. Confirms that the response aims to provide an in-depth scientific analysis to contribute to CCMAS45 discussions on initiating new work. (**Background, Page 5)**
- **Technical comment 3 – Lack of Risk Evaluation:** Supports the paper's accurate diagnosis that current plans (e.g., CXS 193) have an inadequate theoretical basis (faulty homogeneity assumptions) and lack proper risk evaluation. The example illustrating the discrepancy in acceptance probability (37% vs. 0.26%) is a convincing demonstration of this gap. **(Clause 1.3, Page 6**) (**Mandate that the new work must produce a validated tool** (as proposed in Section 1.5)
- **Technical comment 4 – Utility-Based Approach:** Recognizes the shift to a utility-based approach as a significant scientific advancement, as it balances health risks against economic costs and allows for the use of prior information to improve sampling efficiency. **(Section 1.4 and 7: Page 6, 19**)
- **Technical comment 5 – Call for Practical Guidance:** Emphasizes that new methods must be globally applicable, transparent, and understandable. They should be accompanied by practical guidance, including clear examples and ready-to-use reference tables to support implementation during any transitional period. (**Section 1.5:** page 7)
- **Technical comment 6 – Complexity Challenge:** Raises concern that the proposed utility-based approach introduces significant complexity, requiring advanced statistical expertise, reliable prior data, and sophisticated software. This poses a major implementation challenge for member countries with limited resources. (Section 2: Page 7-8)
- **Technical comment 7 – Cross-Commodity Applicability:** Inquires whether the proposed four-parameter approach is equally effective across diverse commodities like grains, nuts, and spices, given the significant variation in contamination heterogeneity. (Section 2: page 8)
- **Technical comment 8 – Identified Gaps:** Notes that Annex C effectively highlights the absence of plans for mycotoxins like OTA, underscoring the need for future work. (Note 4 (within Annex C commentary) page 10)
- **Technical comment 9 – Reliance on Non-Representative Data:** Call for a global data call coordinated by the Codex Secretariat and the new EWG. Encourage member countries and observers to contribute increment-level and aggregate sample data (as per the examples in Annex B) under a standardized format to build a truly representative global database. (page 13)
- **Technical comment 10 –Dependency on Prior Information:** Questions the sensitivity of the approach to the choice of prior parameters and how the soundness and representativeness of this information will be ensured for developing general global guidance. (Section 7.1: Page 19)
- **Technical comment 11 – Use of Modern Data:** Supports the call to utilize recent datasets (Annex B) as a crucial step for developing evidence-based sampling plans. (Annex B, Pages 24-29)

- **Technical comment 12 – Regional Perspective (Arab/CCNE):** For net-importing regions, sound sampling plans are critical for consumer health and fair trade. Implementation capacity is a key concern, and any new work must be accompanied by robust capacity building, technology transfer, and simplified tools.
- **Technical comment 13 – Regional Data Contribution:** Encourages member countries in the region to contribute national contamination data to the global knowledge base to ensure future plans reflect worldwide contamination patterns.

Recommendations

Based on the above analysis, Member countries may invite the Committee to:

1. **Support that the format for this guidance be as an annex to the General Guidelines on Sampling (CXG 50-2004)**, which would grant it official Codex status and ensure its use by all relevant committees and authorities.
2. **Approve the initiation of new work** to develop general guidance for acceptance sampling plans for bulk materials and inhomogeneous lots, with a special focus on mycotoxins, based on the discussion paper in Appendix I. (parag. 18 page 2).
3. **Agree on the need to officially inform the Codex Committee on Contaminants in Food (CCCF)** of this endeavor, invite them to actively participate in the EWG from the outset, and request their views on the acceptable risk levels that should underpin the new plans (parag. 18 page 2)
4. **Emphasize that the scope of the new work must explicitly include:**
    - Developing a clear and simplified methodology for evaluating the risks of current plans in CXS 193, explicitly accounting for the number of increments and contamination levels with specifying a minimum of necessary data (preparation capacity, analytical performance per food matrix, sampling plan implemented, environmental conditions…)
    - Preparing a practical, step-by-step guidance manual explaining how to apply the utility approach, supported by numerical examples and reference tables (Standard Plans) for a transitional period.
    - Designing a user-friendly electronic tool for calculating risks and utility, to be made available in multiple languages, with the understanding that the tool is an aid, not a substitute for scientific understanding.
    - Defining clear mechanisms for collecting and analyzing global data (including from Arab and CCNE countries) to feed the model and update it periodically.
    - Related to the absence of details related to contamination (global, by increment and between seeds), by food matrix, discuss the opportunity and the mechanism to conduct technical developed studies.
5. **Request a progress report from the reconvened EWG to the next session (CCMAS46)** that includes:
    - A preliminary assessment of available datasets and challenges in their use.
    - An initial draft of the proposed statistical framework.
    - A detailed work plan for consultation with CCCF and relevant commodity committees.

Conclusion

1. The regional expert working group agrees with the paper's main conclusion that current sampling plans for bulk heterogeneous materials, especially for mycotoxins, have scientific and technical limitations that warrant review and development.
2. The regional expert working considers the proposed utility approach a step in the right direction towards designing more efficient and effective plans that consider risks, costs, and available information.
3. The regional expert working emphasizes the importance of close collaboration between CCMAS and CCCF to ensure any new guidance meets the needs of both statistical rigor and health risk assessment.

The regional expert working stresses that the outputs of this new work must be practical and easy to apply, taking into account the differing capacities among member countries.

H. Agenda Item 8: Harmonization of Names and Format for Principles and Provisions Identified in CXS 234 (2025)

Document Number: **CX/MAS 26/45/12**

Status in Codex Process: N/A

Background

At its 44th Session, the Codex Committee on Methods of Analysis and Sampling (CCMAS44) considered the discussion paper on the harmonization of names and format for principles and provisions in CXS 234-1999 (Recommended Methods of Analysis and Sampling).

Given the technical complexity of the subject, the Committee agreed to:

- Continue work on harmonizing the names and format of method principles, and
- Consider the harmonization of provisions (Annex D) separately.

An Electronic Working Group (EWG), chaired by Brazil and co-chaired by Chile, was re-established to:

1. Further revise the harmonization of names for principles (Annexes A, B, C).
2. Continue discussions on harmonizing provisions (Annex D).
3. Submit a report ahead of CCMAS45.

The EWG conducted three consultation rounds (July 2025–January 2026) and:

- Proposed improvements to definitions, aligning where possible with internationally recognized terminology (IUPAC, VIM, ISO, ASTM, etc.).
- Included bracketed text where further CCMAS guidance is required.
- Presented a proposed approach for harmonizing provisions due to discrepancies between product standards and CXS 234-1999.
- Retained certain analytical principles not yet referenced in CXS 234-1999, pending CCMAS decision.

The EWG completed its TORs and submitted outcomes in Appendix I (Annexes A–D).

CCMAS45 is invited to:

1. Review and consider the consolidated structure and text in Appendix I (Annexes A, B, C), including:
    - Wording and definitions in square brackets.
    - Whether to retain or remove analytical principles not currently referenced in CXS 234-1999.
    - Adoption of harmonized terminology.
2. Agree to publish Appendix I (Annexes A–C) as an information document after review.
3. Consider the proposed approach for harmonization of provisions (Annex D) as guidance for continuing the work.
4. Agree to proceed with further harmonization of remaining provisions using the proposed approach.

Analysis

Annex A – Principles of Methods of Analysis

➢ **Structural Observations**

- Establishes a comprehensive and standardized list of analytical principles.
- Focuses strictly on the analytical technique used to determine the result (excluding sample preparation unless critical).

➢ **Strengths**

- Moves toward terminological alignment with IUPAC, ISO, VIM and other international vocabularies.
- Clarifies ambiguous concepts (e.g., “Calculation” → “Calculated method-principle”).

- Reduces unnecessary procedural details in principles (e.g., removing "ashing", "centrifugation", "weighing" unless critical).
- Introduces consistency in expressing technique + detector format (e.g., HPLC-FLD, GC-FID).

Key Technical Issues Requiring CCMAS Guidance

- **Scope Expansion**
  - Annex A includes several techniques not currently referenced in CXS 234-1999 (e.g., CLSM, DNA assay, PCR, HRMS).
  - Policy question:

    Should Annex A reflect only currently used principles? Or function as a forward-looking harmonized terminology repository?

- **Hierarchical Structure**
  - Some entries mix:
    - Technique (e.g., Gravimetry)
    - Variants (e.g., drying, incineration)
    - Historical named methods (Röse-Gottlieb, Soxhlet)
    - Sample preparation steps (centrifugation, sieving)

- **Spectrometry vs Spectroscopy**
  - Both appear separately.
  - Risk of conceptual overlap unless clearly defined.

- **Calculation-Based Provisions**
  - The proposed "Calculated method-principle" is technically justified.
  - However, careful drafting is needed to avoid confusion with standard computational steps inherent in all methods.

<u>Annex B – Acronyms and Abbreviations</u>

- **Structural Observations**
  - Provides standardized acronyms corresponding to Annex A principles.
  - Improves clarity in referencing analytical techniques in CXS 234-1999.
- **Strengths**
  - Enhances internal consistency across Codex texts.
  - Aligns with internationally recognized acronyms (HPLC, GC, ICP, MS/MS, etc.).
  - Facilitates harmonized reporting in product standards.
- **Technical Issues**

  Redundancies and Inconsistencies
  - Some acronyms overlap or appear redundant (e.g., ICP, Q-ICPMS, IMS, IRMS).
  - Need to ensure consistent formatting (e.g., capitalization, hyphenation).

  Detector vs Technique
  - Some acronyms correspond to detectors (FLD, DAD, RI).
  - Others to full analytical systems.
  - Clear structural distinction may be beneficial.

Future Proofing

- Inclusion of advanced MS configurations (QTOF, HRMS) supports modernization.
- However, similar policy question as Annex A: Should only currently used acronyms be included?

Annex C – Acronyms for Standard Method References

- **Structural Observations**
  - Lists recognized standard-setting and reference organizations (AOAC, ISO, IOC, IDF, ICUMSA, etc.).
  - Enhances clarity in referencing standard method sources.
- **Strengths**
  - Promotes transparency in method citation.
  - Facilitates consistent abbreviation of standard bodies in CXS 234.
  - Covers a broad range of sector-specific organizations (olive oil, dairy, cereals, sugar, honey, etc.).

Technical Issues

- **Completeness & Maintenance**
  - Some sector bodies included; question remains whether the list is exhaustive or open.
  - Mechanism for periodic updating may be needed.
- **Formatting**
  - Some entries include website details; others vary in presentation.
  - Editorial harmonization may still be required.
- **Status of Scientific Journals**
  - Inclusion of journals (e.g., Analytica Chimica Acta) differs from standard-setting bodies.
  - Clarification may be needed whether Annex C is limited to standard organizations or broader references.

Annex D – Proposed approach for harmonizing provisions in CXS 234-1999

Annex D proposes a pragmatic "database-cleanup + governance" approach to harmonizing *provision names and their presentation* across CXS 234-1999, without changing substantive requirements by default. It uses tables to:

- Map the same measurand appearing under different names/variants across commodities.
- Identify whether change is editorial (can be fixed in CXS 234), or whether it requires referral to the responsible commodity committee (because it affects how the provision is defined/used in the standard).

Key points that deserve CCMAS attention

- **Boundary between "editorial harmonization" vs "substantive change"**: Annex D is careful to say CCMAS can act, but may need to refer items. CCMAS will likely need to **formalize criteria** for when a rename/restructure is purely editorial and when it affects the standard's intent.
- **"Sample preparation" as a provision**: the proposal to delete "sample preparation" provisions and embed the method is sensible and aligns with the definition of "principle/provision" clarity; however, CCMAS should ensure this doesn't unintentionally remove mandatory conditioning steps that commodity committees intended to be normative.
- **Avoiding scientific ambiguity created by harmonization**: some terms look similar but are not the same measurand. The standout example is "Iodine" vs "Iodine value" (concentration vs unsaturation index). Annex D correctly flags this as needing clear separation.
- **Commodity form qualifiers (whole/ground/leaves)**: for mould-type provisions, Annex D highlights that differences sometimes come from commodity form. Harmonization may require a standard way to encode commodity form, rather than customizing the provision name each time.

Recommendations

- **General Position**
  - Support harmonization of terminology and format in CXS 234-1999.
  - Emphasize that harmonization should be editorial and clarity-enhancing, not a reopening of scientific or policy decisions.
- **Annexes A & B (Principles & Acronyms)**

Member countries may:

- Support clearer definitions aligned with international terminology (IUPAC, ISO, VIM).
- Support using a consistent format: Technique + detector (if applicable).
- Encourage removing unnecessary procedural details from “principle”.
- Key point: Request clarification whether Annex A should include:
  - Only principles currently used in CXS 234; or
  - Also, additional techniques for future use.

- **Annex C (Standard Method References)**
  - Inclusion of journals (e.g., Analytica Chimica Acta) differs from standard-setting bodies.
  - Clarification may be needed whether Annex C is limited to standard organizations or broader references.

- **Annex D (Harmonization of Provisions)**

Member countries may:

- Support harmonizing provision names (e.g., single standardized terms).
- Support splitting combined provisions (e.g., “calcium and magnesium”).
- Support deleting “sample preparation” as a provision, provided no normative requirement is lost.
- Emphasize that substantive changes must be referred to the responsible commodity committee.