المبادرة العربية للدستور الغذائي

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REPORT OF THE WORKSHOP ON DATA COLLECTION AND ANALYSIS FOR CODEX PROCEEDINGS

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Executive Summary

As part of the Arab Codex Initiative, this workshop served as a strategic platform to strengthen the capacities of Arab countries in generating, analyzing, and utilizing data to support evidence-based food regulatory decision-making. It brought together Codex Contact Points, national experts, and representatives from regulatory and scientific institutions across the Arab region, with the shared goal of enhancing regional engagement in Codex Alimentarius work.

The program opened with high-level introductory remarks from leaders of the Global Food Regulatory Science Society (GFoRSS), the International Union of Food Science and Technology (IUFoST), the Ministry of Agriculture, Fisheries and Water Resources of Oman (in its role as the CCNE Regional Coordinator), the Oman Codex Contact Point, the US Codex Office, and the Director General of the Food Safety and Quality Center of Oman. These remarks highlighted the importance of regional collaboration and evidence generation in supporting Arab positions in international standard-setting.

The introductory presentation focused on the critical role of data in supporting regulatory decision-making, with a particular emphasis on dietary exposure assessment. Key topics included the use of data on chemical concentrations in food, food consumption patterns, and the submission of such data to the WHO GEMS/Food database using a standardized template. These components are central to ensuring that Arab countries contribute robust scientific data to global food standard setting discussions.

Hands-on breakout sessions provided participants with practical training in extracting data and using the GEMS/Food submission template, focusing on both published literature and national food monitoring programs. The sessions concluded with a plenary discussion where participants shared lessons learned and challenges encountered.

The second day focused on the analysis of occurrence data for the development of Maximum Levels (MLs) for chemical contaminants. Participants were guided through data clean-up, statistical analysis, and estimation of the potential impact of MLs on international trade and public health.

The workshop concluded with focused technical sessions to simulate the process of setting maximum levels (MLs) for contaminants. Participants worked on analyzing lead occurrence data in herbs and spices and reviewing hypothetical MLs, following the format and structure of actual Codex Committee on Contaminants in Foods (CCCF) working documents, to build practical understanding of the ML-setting process.

Through this initiative, the Arab Codex network continues to build a strong foundation for active and informed participation in Codex work. The program reflected a regional commitment to enhancing food safety governance, leveraging data to protect public health, and ensuring that Arab countries are well-represented in the global food standards-setting process.

Introduction

As part of ongoing efforts to enhance the participation of Arab countries in the work of the Codex Alimentarius, a regional workshop was co-organized under the Arab Codex Initiative by the Arab Industrial Development, Standardization and Mining Organization (AIDSMO) and the Global Food Regulatory Science Society (GFoRSS), with support from the U.S. Department of Agriculture (USDA) and under the high patronage of the Food Safety and Quality Center, the Ministry of Agriculture, Fisheries and Water Resources of Oman. The workshop focused on building regional technical capacity in the collection, analysis, and strategic use of data to support evidence-based food regulatory decision-making.

With a particular emphasis on contaminants in food and the development of Maximum Levels (MLs), the event brought together Codex Contact Points and representatives from key regulatory and scientific institutions across the Arab region. A total of 50 participants attended in person, with an additional 36 joining virtually, demonstrating strong regional engagement and commitment.

The workshop provided a platform for practical training, experience sharing, and strengthening efforts toward greater coordination among Arab countries to support more effective participation in international standard-setting through the generation and sharing of high-quality data.

Day 1: Wednesday 30 July

Participant registration at 8:30 a.m. marked the beginning of the Workshop.

Opening of the Workshop

The opening session started with introductory remarks from:

- Prof. Samuel Godefroy, President and COO, Global Food Regulatory Science Society (GFoRSS) and President of the International Union of Food Science and Technology (IUFoST).
- Eng. Mohammed Al-Kindi, Representative on behalf of Oman Codex Contact Point, Food Safety and Quality Center, Ministry of Agriculture, Fisheries and Water Resources, Oman.
- Eng. Ahmed Eddouaicer, Coordinator of the Arab Codex Initiative, Arab Industrial Development, Standardization and Mining Organization (AIDSMO).
- Ms. Alexandra Ferraro, US Codex Office, United States Department of Agriculture (USDA).

- Dr. Hussein Bin Samh Al-Masroori, Director General, Food Safety and Quality Center, Ministry of Agriculture, Fisheries and Water Resources, Oman.

Following the opening remarks, Dr. Amine Kassouf, Scientific Director of GFoRSS, presented the agenda and objectives of the two-day workshop. He then invited participants to introduce themselves and their affiliations. The technical discussions began with an introductory assessment, during which participants were given time to respond to a set of questions. The responses were discussed in plenary, helping to set the scene for the training.

Introductory Presentation

Professor Samuel Godefroy, Laval University Professor in Food Risk Analysis, President and COO of the Global Food Regulatory Science Society (GFoRSS) and President of the International Union of Food Science and Technology (IUFoST) delivered an introductory presentation on the critical role of data in supporting evidence-based food regulatory decision-making. His presentation set the stage for the workshop by highlighting the importance of reliable data in shaping sound regulatory policies and contributing effectively to Codex standard-setting processes.

Dietary Exposure Assessment: General principle

Dr. Karima Zouine from the Moroccan delegation and the GFoRSS team delivered a comprehensive presentation on the general principles of dietary exposure assessment (DEA), highlighting its critical role in food safety risk assessment and regulatory decision-making. She explained how DEA estimates the intake of hazards such as contaminants, additives, or nutrients through food, using both food consumption data and hazard concentration data. The presentation emphasized the importance of DEA in reflecting real-life consumer exposure and its application in addressing the increasing complexity of food-related risks. Dr. Zouine outlined both deterministic and probabilistic approaches to exposure assessment, detailing their methodologies and relevance in different regulatory contexts. She also showcased the practical benefits of DEA for strengthening national regulatory systems, supporting Codex contributions, and informing risk management decisions, particularly in the context of developing regional capacity and harmonized standards.

Data on Concentrations of Chemicals in Food

Dr. Amine Kassouf delivered a presentation on selecting and using occurrence data, specifically concentration data of chemicals in food, for dietary exposure assessment. He explained the different types and sources of concentration data, including maximum levels (MLs), maximum residue limits (MRLs), and measured values from monitoring, surveillance, supervised trials and Total Diet Studies (TDS). The presentation highlighted the importance of choosing appropriate data based on the assessment objective (acute vs. chronic exposure) and addressed the strengths and limitations of various data sources. Dr. Kassouf also introduced publicly available databases and emphasized the need for consistent data collection, based on sound analytical methods, and transparent documentation to ensure reliable exposure estimates.

Data on Food Consumption

Dr. Elie Bou Yazbeck, from the GFoRSS team, delivered a presentation on the importance of food consumption data in regulatory decision-making and dietary exposure assessment. He explained the types, sources, and collection methods of food consumption data, highlighting their strengths and limitations. The presentation emphasized the need for accurate, context-specific data to support effective risk assessment and food safety decisions. Dr. Bou Yazbeck also introduced the Arab Food Consumption Initiative, outlining its objectives to harmonize data collection methodologies, build technical capacity, and develop a regional network and tools to support consistent and reliable data use across Arab countries.

Data Collection and Submission to the WHO GEMS/Food Database

Dr. Amine Kassouf then introduced the WHO GEMS/Food database, a global platform that compiles data on food consumption and chemical contamination in food from countries worldwide. He explained how the database supports dietary exposure assessments and international standard-setting by Codex, highlighting its relevance to the workshop's objectives of strengthening participants' capacities in data collection, analysis, and standardized submission for Codex processes.

Breakout Session (Room A): Data extraction from published literature and filling out the GEMS/Food Template

***Moderator**: Dr. Amine Kassouf, GFoRSS Team.*

This session focused on building participants' capacity to extract and standardize occurrence data on heavy metals in food, using published scientific literature. Participants worked with a selected article on trace elements in honey to practice identifying, evaluating, and completing missing data elements for inclusion in global data platforms such as GEMS/Food. The exercise aimed to enhance skills critical for supporting evidence-based food regulatory decisions and international standard-setting processes.

Breakout Session (Room B): Data extraction from food monitoring programs and filling out the GEMS/Food Template

***Moderator**: Dr. Karima Zouine, ONSSA/GFoRSS Team*

This session provided hands-on training using an excerpt from a monitoring dataset on lead (Pb) in individual and mixed spices. Participants practiced identifying, evaluating, and completing missing information in Excel worksheets to prepare the data for standardized sharing. The exercise aimed to strengthen regional capacity in managing occurrence data for inclusion in global platforms like GEMS/Food and to support evidence-based food safety decisions and international standard-setting efforts.

Breakout Summary and Plenary Discussion

***Moderator:** Prof. Samuel Godefroy, GFoRSS Team*

Reports from the breakout rooms were presented in plenary, contributing to a collective understanding of best practices and common challenges in preparing standardized occurrence data.

Day 2: Thursday 31 July

Day 2 began with a recap of key outcomes from Day 1, delivered by Prof. Samuel Godefroy, who also introduced the agenda and activities planned for the second day of the workshop.

Data Analysis for the Development of Maximum Levels (MLs)

Day 2 of the training focused on building participants' capacity to carry out data analysis required for the establishment of Maximum Levels (MLs) for chemical contaminants in food. The day was structured to follow the logical sequence of data handling and interpretation steps, from initial extraction to impact assessment, with hands-on exercises at each stage.

The day began with a session led by Dr. Amine Kassouf, who introduced the participants to the process of **extracting and preparing occurrence data**. This included identifying relevant datasets, understanding the structure and quality of available information, and performing a thorough clean-up process. Dr. Kassouf addressed challenges such as missing or incomplete entries, inconsistent units, ambiguous sampling details, and the treatment of non-detects. Participants were guided through practical steps to ensure that datasets are suitable for further analysis and comparable across sources.

The next session, led by Dr. Elie Bou Yazbeck, introduced the core principles of **statistical analysis for ML setting**. Dr. Bou Yazbeck demonstrated how to describe data distributions, calculate summary statistics (mean, median, percentiles), and handle datasets with small sample sizes or high proportions of non-detects. Participants also learned how to apply substitution methods for censored data and how to determine the representativeness and reliability of datasets. Visualization techniques were also presented to support the interpretation of data patterns and variability.

Dr. Kassouf then returned to deliver a focused session on the **calculation of rejection rates** under different hypothetical ML scenarios. This session emphasized the importance of evaluating how many data points would be rejected if a proposed ML were applied, and how such calculations can help balance public health protection with trade considerations. Participants practiced calculating rejection rates and discussed how to interpret the results to inform risk management decisions.

The session concluded with a presentation by Dr. Karima Zouine on **estimating the reduction of dietary exposure** that could result from the implementation of MLs. Using sample datasets and simplified dietary scenarios, she showed how to assess the impact of MLs on consumer exposure levels. This step is critical in demonstrating the effectiveness of proposed MLs in reducing health risks. Participants explored how different ML options could influence exposure outcomes and how such results can support the justification of regulatory decisions.

Throughout the presentation, the sessions were interspersed with practical exercises using real-world data, allowing participants to apply the concepts learned, discuss challenges, and compare approaches. The combination of theoretical grounding and applied work helped reinforce participants' understanding of how to carry out and interpret data analysis in the context of ML development.

Breakout Sessions (Room A & B): Analysis and Position Development regarding Agenda Items of CCCF

***Moderators**: Dr. Amine Kassouf, GFoRSS & Dr. Karima Zouine, ONSSA/GFoRSS Team*

As part of Day 2, two hands-on breakout sessions were conducted to reinforce the technical concepts introduced earlier in the day and provide participants with the opportunity to apply a stepwise approach to the setting of Maximum Levels (MLs). The exercise was built around two real-world Codex documents (CX/CF 25/18/05 and CX/CF 25/18/18) related to lead (Pb) contamination in herbs and spices, simulating scenarios discussed during the 18th session of the Codex Committee on Contaminants in Foods (CCCF18).

Participants were divided into two breakout groups and tasked with analyzing the impact of various ML options for lead in herbs and spices. Working with the full Codex working document as a reference, they followed a structured, risk-based methodology to:

- Estimate dietary exposure to lead based on available occurrence data and consumption levels,
- Calculate the expected reduction in exposure under different hypothetical MLs,
- Determine the sample rejection rates (i.e., the proportion of samples that would exceed each ML and be removed from the market).

The exercise guided participants through the practical application of risk assessment principles, particularly dietary exposure assessment, and demonstrated how different ML thresholds can influence both consumer protection and market implications. In doing so, the exercise supported understanding of the ALARA (As Low As Reasonably Achievable) principle and its application in real decision-making scenarios.

This collaborative exercise served not only to build technical competencies but also to strengthen regional capacities in evidence-based standard setting. It encouraged critical thinking and promoted a harmonized understanding of the procedures used to propose MLs within the Codex framework, ultimately empowering participants to more effectively contribute to both national and international food safety efforts.

Breakout Summary and Plenary Discussion

***Moderator:** Prof. Samuel Godefroy, GFoRSS Team*

Following the breakout group sessions, a plenary briefing was held during which each group reported back on their analysis and key findings. Participants shared how they applied the stepwise approach to assess dietary exposure, calculate rejection rates, and evaluate the impact of various hypothetical Maximum Levels (MLs) for lead in herbs and spices. The presentations demonstrated a solid grasp of the technical concepts and highlighted the importance of using local consumption and occurrence data to inform national decision-making. The discussion also emphasized the value of context-specific standard setting and the challenges of balancing health protection with market feasibility. The plenary served as an opportunity for cross-group learning, clarification of methodological steps, and a reflection on how this approach can support national contributions to Codex work.

Closing Ceremony

The Closing Session featured remarks by Prof. Samuel Godefroy, President of IUFoST and COO of GFoRSS, and Dr. Hussein Bin Samh Al-Masroori, Director General of the Food Safety and Quality Center, Ministry of Agriculture, Fisheries and Water Resources. The closing ceremony provided an opportunity to reflect on the outcomes of the workshop, acknowledge the valuable contributions of the participants, and conclude with the distribution of certificates.

General Recommendations

1. Nominate a National Data Management Focal Point

It is recommended that each country assigns a dedicated data management officer or focal point responsible for coordinating the collection, verification, and submission of data relevant to Codex activities. This role will serve as a key support function to national Codex structures and facilitate timely and consistent contributions to Codex committees, particularly CCCF.

2. Standardize Data Collection through the Harmonized Excel Template

A standardized Excel-based template will be finalized and shared through the Arab Codex Initiative. This tool will guide the systematic collection of occurrence data to ensure consistency, completeness, and alignment with GEMS/Food database requirements. Participants emphasized the importance of adopting this format

nationally and introducing minor improvements based on workshop feedback before wide dissemination to concerned national stakeholders.

3. Circulate and Validate CCCF Priority Topics

Countries are encouraged to review and discuss the current list of CCCF priority topics, and to identify national priorities for which data collection and submission efforts will be focused. This will help target resources and ensure that contributions are aligned with both national interests and Codex workstreams.

4. Establish a Mechanism for Monitoring JECFA Calls for Data

A regular follow-up mechanism should be put in place to track JECFA calls for data that correspond to the agreed national priority areas. This will ensure timely response and improved participation in the risk assessment process, thereby strengthening the scientific basis and the geographical representativeness of Codex decision-making.

Interested in Knowing More?

Additional information on the Workshop can be accessed online. Visit us!

- GFoRSS Website

WORKSHOP: Data Collection and Analysis for Codex Proceedings • 30-31 July 2025, Sultanate of Oman - Global Food Regulatory Science Society (GFoRSS)

Annex 1: List of Participants

	Name	Country
1	Abeer Hamed AlAmari	Oman
2	Afrah Saleh Said Alghailani	Oman
3	Aisha Ali AlAbri	Oman
4	Ahmad Ali Abdallah Alshibly	Jordan
5	Ahmed Hamood Talib Alhadhrami	Oman
6	Ahmed Jaafari	Morocco
7	Asila Al Amri	Oman
8	Akram Mohsen Al-Japairai	Yemen
9	Alaa Adel Ahmed	Iraq
10	Ameira Mohamed ElShafee	Qatar
11	Amer Ali Al-Habsi	Oman
12	Asma Musallam Hidaib Alhashmi	Oman
13	Ayadh Said Salim	Oman
14	Fatema Ahmed Mohamed Isa	Bahrain
15	Fatma Charafi	Tunisia
16	Fatma Yousuf AlArImi	Oman
17	Hadi Elalem	Libya
18	Hasan Saeed Salem	Yemen
19	Heba Mohamed Jaafar	Bahrain
20	Hilal Khamis Ali Almusharrafi	Oman
21	Hisham Abdulgader	Libya
22	Houda Awad	Sudan
23	Hussein Samh Al-Masroori	Oman
24	Karima Zouine	Morocco/GFoRSS
25	Karine Youssef Joubrane	Lebanon
26	Khalid Mubarak Alzuhaibi	Oman
27	Khamis Ali Khamis AlShamsi	Oman
28	Lama Joseph Abou Rjeily	Lebanon

29	Mahmood Ali Albalushi	Oman
30	Marwa Mahmood AlRawahi	Oman
31	Maryam Mohammad Naser Alfarsi	Oman
32	Marima Barsoum Onsy	Egypt
33	Mataab Rashid Saif Almamari	Oman
34	Meera Nooruddin Kazim	UAE
35	Mohammed Ali Saeed	Yemen
36	Mohammed Zahir Alkindi	Oman
37	Naela Muhanna Saif Alhinai	Oman
38	Nadgia Boukhara	Algeria
39	Nagham Hameed Dhahir	Iraq
40	Nahla Mohamed Abdullah	Sudan
41	Naima Khamis AlKharosi	Oman
42	Noha Mohamed Attia	Egypt
43	Omar Talib Rashid Alfarsi	Oman
44	Raja Salem Khamis	UAE
45	Rajaa Mohammed Alrhabi	Oman
46	Razna Mohammed AlMaimani	Oman
47	Sana Jaballah	Tunisia
48	Shaher Sameer Al-Shebli	Jordan
49	Tahani Said AlKhadhuri	Oman
50	Zainah Abdelhalim Aboujalalah	Qatar
GFoRSS Team		
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52	Amine Kassouf	GFoRSS
53	Elie Bou Yazbeck	GFoRSS
54	Mustafa Sultan	GFoRSS
55	Nayra Ahmed Elsherief	GFoRSS
56	Habib Hadouaj	GFoRSS