WORKSHOP ON DATA COLLECTION AND ANALYSIS FOR CODEX PROCEEDINGS

Data Collection and Submission to the WHO GEMS/Food Database

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Outline

1. Introduction
2. Registration and Login
3. The GEMS/Food template
4. Calls for data
5. Conclusion

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Training Objectives

By the end of this training module, participants will be able to:

1. Register for access and set up a data provider account on the GEMS/Food platform.

2. Review and understand the requirements for data collection and submission using the GEMS/Food template.

3. Respond to periodic calls for data issued by the JECFA Secretariat.

Introduction

- **Since 1976**, the Global Environment Monitoring System - Food Contamination Monitoring and Assessment Programme, which is commonly known as **GEMS/Food**, has informed:
  - governments,
  - **the Codex Alimentarius Commission and its scientific advisory bodies**, such as JMPR and JECFA, and
  - other relevant institutions, as well as the public,

  on **levels and trends of contaminants in food**, their contribution to total human exposure, and significance with regard to public health and trade.

World Health Organization

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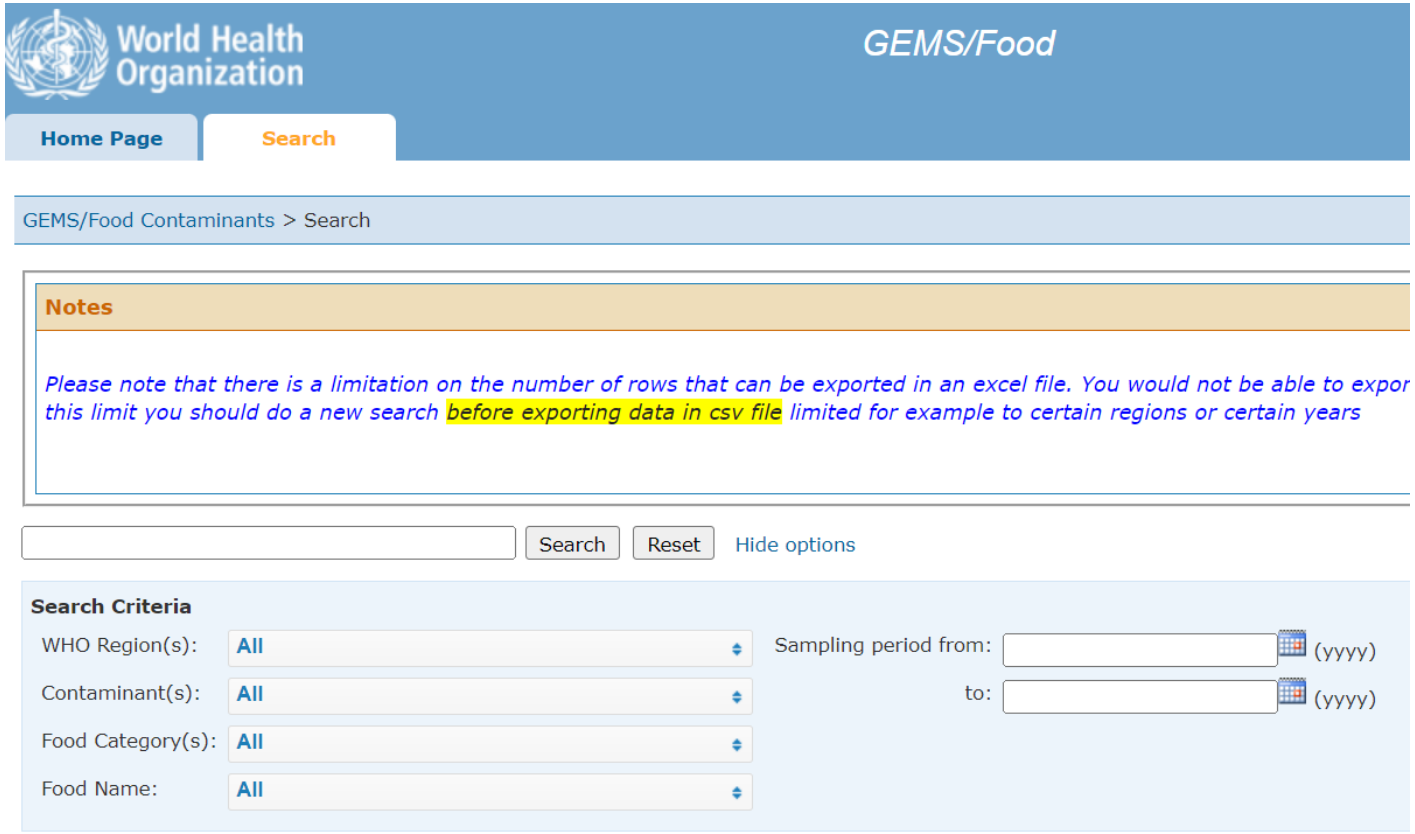
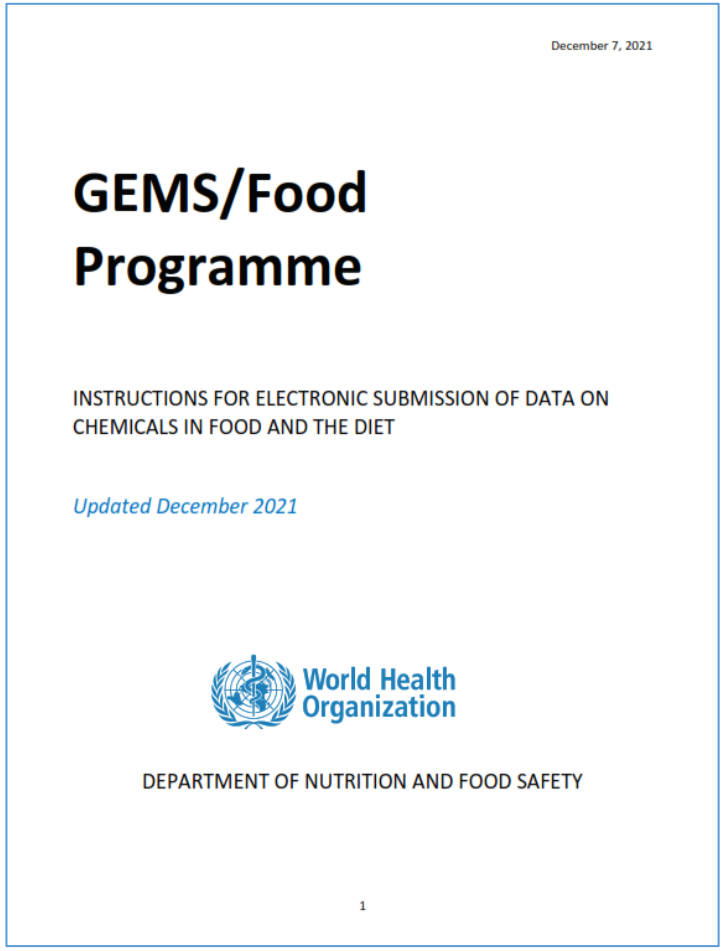
Introduction

The GEMS/ Food Database is a **web-based system** to access and submit data on contaminants levels in foods.





https://www.who.int/teams/nutrition-and-food-safety/databases/global-environment-monitoring-system-food-contamination

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Introduction

- The GEMS/ Food **Cluster diets**: as part of its dietary exposure assessment mandate, GEMS/Food has developed model diets which are currently used for predicting dietary intake of various chemicals (**17 cluster diets**).

World Health Organization

GEMS/Food Cluster Diets - 2012

A part of the FOSCOLLAB

Click here to download full data set

Clusters and Countries

Select Clusters

G01	Afghanistan, Algeria, Azerbaijan, Iraq, Jordan, Libya, Mauritania, Mongolia, Morocc...
G02	Albania, Bosnia and Herzegovina, Georgia, Kazakhstan, Kyrgyzstan, Montenegro, R...
G03	Angola, Benin, Burundi, Cameroon, Congo, Côte d'Ivoire, Democratic Republic of t...
G04	Antigua and Barbuda, Bahamas, Barbados, Brunei Darussalam, French Polynesia, G...
G05	Argentina, Bolivia Plurinational State of , Brazil, Cape Verde, Chile, Colombia, Cost...
G06	Armenia, Cuba, Egypt, Greece, Iran Islamic Republic of , Lebanon, Turkey
G07	Australia, Bermuda, Finland, France, Iceland, Luxembourg, Norway, Switzerland, U...
G08	Austria, Germany, Poland, Spain
G09	Bangladesh, Cambodia, China, Democratic People's Republic of Korea, Guinea Biss...
G10	Belarus, Bulgaria, Canada, Croatia, Cyprus, Estonia, Italy, Japan, Latvia, Malta, New ...
G11	Belgium, Netherlands
G12	Belize, Dominica
G14	Comoros, Fiji Islands, Kiribati, Papua New Guinea, Solomon Islands, Sri Lanka, Van...
G13	Ethiopia, Erythrea, South Sudan, Botswana, Burkina Faso, Central African Republic, ...
G16	Gabon, Rwanda, Uganda
G17	Samoa, Sao Tome and Principe
G15	Serbia, Czech Republic, Denmark, Hungary, Ireland, Lithuania, Portugal, Romania, ...

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Registration and Login

- **Data providers** should first register and create a WHO login (e-mail address) and password (e-mail should be sent to gems_food@who.int).

- The institution owning the data should provide the GEMS/Food administrator with contact details to have it listed as a collaborating institution.

- Once logged in to the database, the user will have access to the **Excel templates** for contributing data, that allow data providers to enter the national food classification and to map it with the WHO and/or the FoodEx2 classifications.

Registration and Login

❑ Excel templates for contributing data:

- The "**Regular template**" allows data provider to enter the national food classification and to map it with both the WHO and the FoodEx2 classifications.

- The "**Bulk template**" allows data provider having already mapped the national classification with either the WHO or the FoodEx2 classification to enter data directly using one of the 2 coding system.

Food Mapping

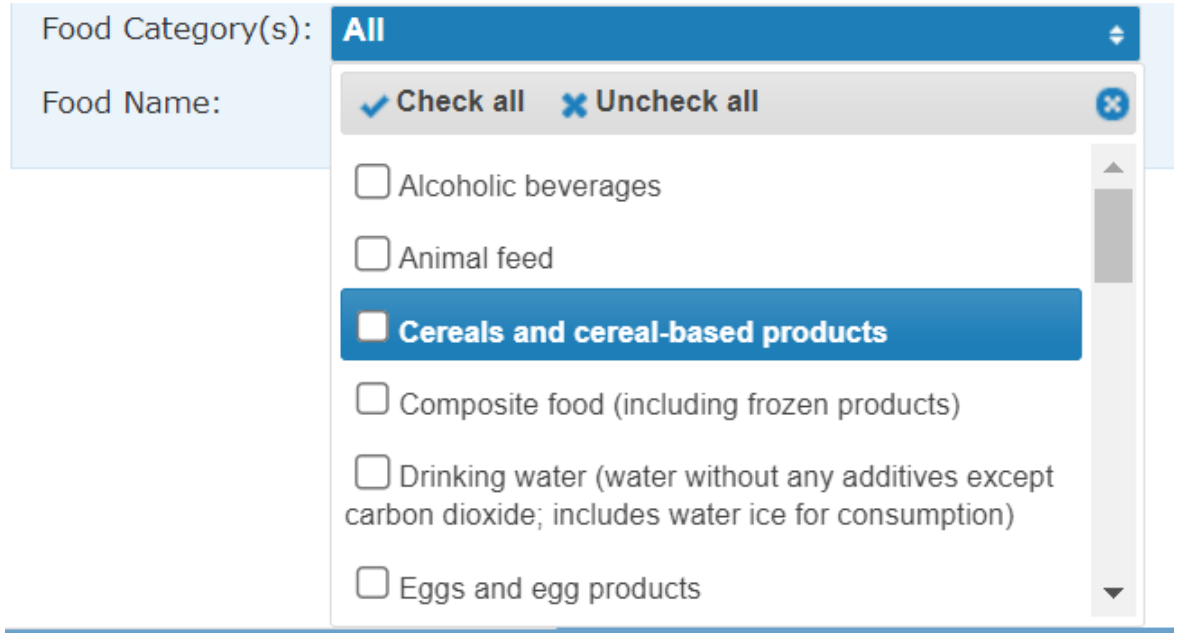
- The **national classification** should be mapped with either the WHO or the FoodEx2 classification (The **local food identifier** consists of the name given to the food in the national database).

- The GEMS/Food code is based on a hierarchical classification with **2 levels:**

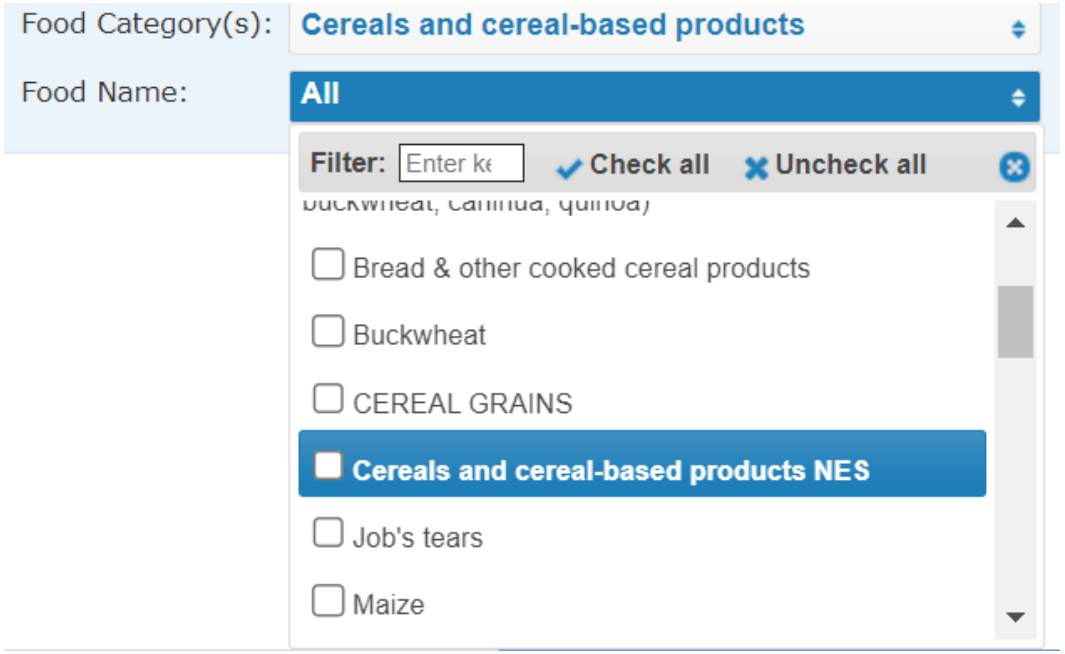
  - The first level (**WHO Food Group**) corresponds to 23 broad categories usually reported in food consumption surveys plus one category for feed.
  - The second level (**WHO Food Identifier**) corresponds to the detailed food descriptors used in the Codex Alimentarius Committees and to foods, processed or not, and analyzed as purchased or as consumed.

- The FoodEx2 code developed by EFSA and recommended for dietary exposure assessment **is already mapped with the WHO code**.

Food Mapping



If no information on the detailed food category (e.g., "fruit") select a WHO Food Identifier similar to the WHO Food Group (e.g., Fruit and fruit product NES).



If the precise food name is not listed, the more generic sub-group listed in CAPITALS should be chosen.

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Current fields in GEMS/Food template

Column	Field	Field type /Drop-down menu	Mandatory or Optional	Flag language (proposed new or revised)
E	Local Food Identifier	Free text	Mandatory	Provide a *brief but descriptive* name of the food, such as "Orange roughy" (versus "Fish") or "Polished/white rice" (versus "rice.")
F	Serial no of the Record	Free text	Mandatory	One serial number is used for each sample. Data on different contaminants in the same sample should have the same serial number. National institutions should coordinate serial number selection to ensure numbers are informative and non-duplicative.
G	Submitting Country/Region/Observer	Drop-down menu • (List of countries, regions, observers) • Unspecified	Mandatory	Identifies country, region, or observer (region unspecified) submitting the data; this is not the country of production. If observer is not listed in dropdown menu, choose Unspecified and note name of Observer in Remarks.
H	Contaminant	Drop-down menu • (List of contaminants)	Optional	Please select a contaminant from the list. A contaminant is required, but manual entry in "Column H: Contaminant" is optional if a contaminant has been added on Worksheet 1: Start. If "multiple" is selected in Worksheet 1: Start, manual entry of contaminants in Field H is required.
I	Food Origin	Drop-down menu • Domestic • Imported • Mixed origin • Unknown	Optional	
J	Sampling Date	Free text (YYYY)	Mandatory	
K	Sample representative-ness	Drop-down menu • Random (routine) sampling • Targeted sampling • Unknown	Mandatory	Targeted sampling refers to targeted follow-up of specific findings of contamination. Random (routine) sampling refers to sampling that is not targeted and can include routine surveillance or sampling specific food types or importing countries.
L	Laboratory Identification	Free text	Optional	Laboratory that completed the analysis.

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Current fields in GEMS/Food template

Column	Field	Field type /Drop-down menu	Mandatory or Optional	Flag language (proposed new or revised)
M	Analytical Quality Assurance	Drop-down menu • Internal quality assurance and reference standards only. • Successful participation in relevant proficiency tests/interlaboratory comparisons during the sampling and analysis period. • Official accreditation for the relevant methods during the sampling and analysis period. • Unknown quality assurance of the lab.	Optional	
N	Measurement units for Contaminant Levels	Drop-down menu • mg/kg • µg/kg • ng/kg • pg/kg • Bq/kg	Mandatory	Check units carefully. Make sure units chosen from dropdown menu align with sample results.
O	LOD	Free text	Mandatory for results not quantified (i.e., non-detect) if LOQ is not provided. (Optional)	Enter a numeric value greater than 0 and less than LOQ. This field contains the limit of detection reported by the laboratory. LOD or LOQ are mandatory if non-detect is entered in Results (T).
P	LOQ	Free text	Mandatory for results not quantified if LOD is not provided. (Mandatory)	Enter a numeric value greater than 0 and LOD. This field contains the limit of quantification reported by the laboratory. LOD or LOQ are mandatory if non-detect is entered in Results (T).

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Current fields in GEMS/Food template

Column	Field	Field type /Drop-down menu	Mandatory or Optional	Flag language (proposed new or revised)
Q	Results based on	Drop-down menu • Fat content • Dry weight • As is (raw, fresh, as sold) • As consumed	Mandatory	
R	Portion analyzed	Drop-down menu • Edible only • Whole food (edible + inedible)	Mandatory	Example: shelled nut (edible) versus unshelled nut (whole food)
S	State of food analyzed (Cooked/Raw)	Drop-down menu • Cooked • Raw • Unknown	Optional	Example: raw fish versus cooked fish
T	Results	Free text	Mandatory	Entering a result is mandatory: either a zero, non-detect, or a numeric result. Zero or non-detect can be entered only if LOQ or LOD are provided.
U	Individual vs Aggregated data	Drop-down menu • Individual • Aggregated	Mandatory	
V	Confidentiality of Data	Drop-down menu • Yes • Blank	Optional	All data for which "blank" is chosen or no option is selected will be considered as non-confidential in data handling and analysis.
W	Remarks/References	Free text	Optional	
X	Year of production/harvest	Free text (YYYY)	Optional	
Y	Compositional information	Free text	Optional	Information from labels or as determined analytically such as major ingredients, fat content, water content, or percent total cocoa solids.
Z-1	Country/Region of Production of Finished Product	Menu • Unknown • Countries/Regions (A-Z)	Optional	

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Current fields in GEMS/Food template

Column	Field	Field type /Drop-down menu	Mandatory or Optional	Flag language (proposed new or revised)
Z-2	Country/Region of Origin of Raw Materials	Menu • Unknown • Countries/Regions (A-Z)	Optional	
AA	Product type	Menu: • Destined for further processing • Ready to eat • Not applicable • Unknown	Optional	"Destined for further processing" and "ready to eat" are defined for certain contaminants and commodities in the *Codex General Standard for Contaminants and Toxins in Food and Feed*, CXS-193. See paragraph 48 below.
BB	Sampling location in production chain	Menu: • Unknown • Production site • Bulk lot transport • Border (import/export) • Market/Retail • Other	Mandatory	Provides information on where the sample was obtained in the production chain.
CC	Principle of method of analysis	Menu • Method A • Method B • Method Z • Other • Unknown	Optional	

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GEMS/Food Database

World Health Organization

GEMS/Food

Feedback | Login | Search

Home Page | Search

GEMS/Food Contaminants > Search

Search Criteria

WHO Region(s): All

Contaminant(s): Abamectin

Food Category(s): Fruit and fruit products

Food Name: Avocado

Sampling period from: (yyyy)

to: (yyyy)

Search Results Export to file (csv) | Print | Get link to this search | Email this search

Record Type	Region	Contaminant	Food Group	WHO Food Identifier	WHO Food Code	State of food analysed	Result	Units	LOD	LOQ	Year Sample	Sample representativeness (or reliability)	Lab identification	Food origin	Analytical quality assurance	Results based on
Individual	PAHO	Abamectin	Fruit and fruit products	Avocado	FI 0326	Raw	ND	mg/kg	0.01	0.011	2015	Random sampling	8	Imported	Officially accredited	As is
Individual	PAHO	Abamectin	Fruit and fruit products	Avocado	FI 0326	Raw	ND	mg/kg	0.01	0.011	2015	Random sampling	8	Imported	Officially accredited	As is
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Calls for Data

- Data can be submitted to the GEMS/Food database on any food at any time, not just in response to a Call for Data specifying specific foods or time periods of interest.
- If data are submitted in response to a specific Call for Data, consider noting this information in the Remarks field.
- Data that fall outside the date frame referenced in a Call for Data can also be submitted. These data may be informative for study of contaminant levels over time

https://www.who.int/news-room/articles-detail/request-for-data-on-total-aflatoxins-in-ready-to-eat-peanuts

Calls for Data

Request for data on total aflatoxins in Ready-to-Eat Peanuts

Issued on 1 August 2024

Background

The 17th Session of the Codex Committee on Contaminants in Foods (CCCF17) agreed to request the JECFA Secretariat issue a call for data on aflatoxins in Ready-to-Eat peanuts.

We are therefore requesting submission of new data or resubmission of data on total aflatoxins in Ready-to-Eat peanuts:

- Data on occurrence of total aflatoxins for the last 10 years;
- Data collected with methods with a LOQ of 4 µg/kg or below, is required
- Data on Ready-to-Eat peanuts, for which it can reasonably be assumed that at least 90% or more of the food item consists of peanut, and no more than 10% is flavour, condiment, or coating.

Calls for Data

WHO will be compiling data for the JECFA Secretariat.

All new data must be uploaded in the GEMS database, which is easily accessible on the web.

To access the GEMS database, go to https://extranet.who.int/gemsfood/Default.aspx#. To submit data, you will need an account. Instructions on creating an account are found on the website.

For technical questions about submitting data to GEMS, please contact Dr Luc Ingenbleek at WHO (ingenbleekl@who.int).

Please read the "GEMS/Food Database Manual" before attempting to submit data to GEMS.

When submitting data to the GEMS/Food database for this work, please:

- Provide complete information on the LOQ and LOD of analytical methods;
- Complete information for identification of the samples (serial number);
- Provide information in the "Local Food Identifier" or "WHO food identifier" fields of the database to allow more specific identification of samples, e.g., salted peanuts…;
- Indicate "as consumed" in the field called 'Results based on' (column Q);
- Indicate in the field called 'Remarks/references' (column W) if the data for peanuts refer to "ready-to-eat" or to peanuts intended for "further processing".

Conclusion

- Prior to upload, the data submitter should review the file carefully for errors.

- During upload, the data file is scanned to identify problems before writing data into the database. The data submitter is responsible for correcting errors and re-submitting the template.
- Datasets can be rejected for a variety of reasons, some of which are listed below:
  - Reported result < LOD, missing LOQ or LOD when result is non-detect, reported LOD > LOQ
  - Dates entered in the wrong format
  - Mandatory fields incomplete
  - Duplicate entries in the current worksheet or in the database

- **The GEMS/Food database administrator can be contacted for assistance.**

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