**Food and Agriculture Organization of the United Nations**

**World Health Organization**

# Request to provide latest national individual food consumption data into the new templates for acute and chronic exposure assessment

## Background

Following the request of the Codex Committee on Residues of Veterinary Drugs in Foods (ALINORM REP11RVDF), FAO and WHO convened an expert consultation in 2011 on exposure assessment methodologies for residues of veterinary drugs in foods[1].This report issued a number of recommendations regarding food consumption data requirements to assess dietary exposure to veterinary drugs. In particular, FAO and WHO are requested to collect food consumption data at a more detailed level and from more different regions and countries around the globe. It will improve the precision in both acute and chronic exposure assessments and will account better for variability in dietary patterns around the globe.

In addition, the experts recommended to collect separately individual food consumption data for acute and chronic exposure assessments for adults and for children. These recommendations are consistent with the request of the Joint FAO/WHO Meeting on Pesticide Residues [2] regarding food consumption data requirements for acute dietary exposure.

In order to harmonize the food consumption data for risk assessment purpose, FAO and WHO are launching a call to submit summary statistics based on individual food consumption data. These data will be used to asses dietary exposure to chemical food hazards including veterinary drugs, pesticide residues, food additives and contaminants and biological hazards. In addition, these data may be used for dietary assessment for nutritional purposes.

### *Data requirements and submission of data*

Food consumption data and related data shall be submitted to FAO/WHO according to two data model templates, one for acute and one for chronic, exposure assessment use. (http://www.who.int/foodsafety/consumption_call/en/index.html). Guidance on how to map the national data to the FAO/WHO classification system and on how to prepare the summary statistics for the acute and chronic template is provided in Annex 1.

The national food consumption data should fulfill the following criteria:

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[1] http://www.who.int/foodsafety/chem/jecfa/vet_drugs/en/index.html

[2] http://www.fao.org/fileadmin/templates/agphome/documents/Pests_Pesticides/JMPR/Report10/JMPR_2010_contents.pdf

- collected at individual level by means of one of the following methods: a 24h food recall, a food record method, a quantitative food frequency questionnaire or a dietary history questionnaire
- preferably be the most recent national data
- shall target adults, children or both population groups
- survey participants should have been selected randomly and should represent the target population group at national level

Governmental agencies and other relevant authorities are kindly requested to submit summary statistics data and related information on the methodology by filling the templates (http://www.who.int/foodsafety/consumption_call/en/index.html) by 30th September 2012.


### *Conditions of data usage*

FAO and WHO will use data:

- To provide scientific advice to FAO and WHO on food safety. In particular, the data will serve the expert groups like JECFA, JMPR and JEMRA

- To serve the discussions within the Joint FAO/WHO International Food Standard programme of the Codex Alimentarius Commission and related relevant bodies

- To serve dietary assessments for nutritional purpose

Data will remain the property of the data providers. FAO/WHO will have the right to use and publish the summary statistics for carrying out risk assessment. They will be published on the website of WHO and FAO. In case the data provider agrees only to internal use but not to the publication of the national data it needs to be specified during the data submission phase (Option available in the sheet dedicated to the Survey_Details in the templates).


After completion the templates should be sent electronically to:

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***References***

Available information on international food consumption data can be found on the GEMS/Food website available at the WHO Website at: http://www.who.int/foodsafety/chem/gems/en/

Procedures for the evaluation of chemicals in food were updated and recently published by FAO and WHO (Methods and *Principles for the Safety Assessment of Food Additives and Contaminants in Food* – Environmental Health Criteria No. 240, available at: http://whqlibdoc.who.int/ehc/WHO_EHC_240_4_eng_Chapter1.pdf).

## ANNEX 1: Guidance for filling in the templates on food consumption data

Currently, FAO/WHO scientific advice relies on food consumption data as collected by the WHO GEMS/Food Programme to assess dietary exposure.

The updated food classification system proposed in the current templates aims to provide a unique format for assessment of exposure to all kind of hazards, regardless their nature . The templates take into account the specific needs for acute (short term) and chronic (long term) dietary exposure assessment.

### 1. Guidance on the general survey details

A worksheet entitled "Survey_Details" is present in each template. This information contributes to clarify the methodology used to collect the food consumption data and enables the risk assessors to evaluate, at least qualitatively, related uncertainties. Explanations about details needed are directly provided in this excel worksheet.

FAO and WHO GEMS/Food reserves the right to exclude data from the database that fail to submit the minimum information with regard to the food consumption survey methodology and/or do not comply with the guidance.

### 2. Guidance on the food classification system (rows in the worksheet)

#### a. Principles of the tiered food classification system

The current food classification is based on a tiered approach with 3 hierarchical levels. The levels vary from level 1 with very broad food categories (22 food groups) to level 3 with more detailed sub food groups (547 food groups). Level 1 is the most aggregated one ("Fruits and fruits products"), Level 2 is intermediate ("Berries and other small fruits") and Level 3 is the most precise one, designating often the food items by a name ("Blueberries") and a code.

Level 1 can be used as a screening tool for exposure assessment but is not appropriate for submitting the data.

#### b. Choice of the level of reporting (worksheets level 2 and 3))

For the sake of precision it is crucial that the data are submitted at the most detailed level possible. Whenever possible the data provider should try to map their national food classification system to the level 3 of the current classification system proposed in the templates.

Level 3 includes more than 500 food categories and level 2 only 68. Reporting Level 2 should only be used when restrictions apply to the dissemination of detailed data.

In case the national food classification system has more than 68 food items but less than 500 food items (e.g. around 100), it is preferable to use the worksheet

at level 3 and to use the generic items ("NES"[3] items) when the information for a detailed food item in the national system cannot be matched to the very same food item of the FAO/WHO classifications system proposed in the current templates (see example in next paragraph).

### c. Choice of the food items (rows in the worksheet)

The classification has been built to enable most of the consumed foods to be declared as a third level food item. The most common way is to find the very item in the list (more than 500 items). If the considered item to be declared does not appear as such, some generic items have been created at level 3 in order to map national food items as precisely as possible. These generic food items include the term "nes" in their designations corresponding to the upper level 2. This allows when the majority of data is reported at level 3 to include at this level foods that would have been declared at level 2 other wise. It prevents from switching from a level to another while reporting data.

*Example: A fruit known as being a berry but its precise name is not known from the survey can be declared at the third level under the item "Berries & small fruits, nes" within the worksheet at level 3.*

### How to add a food item which is not declared as such in the list?

If within some generic food items ("nes") the data provider have different information at a more refined level, he has to duplicate the very row and enter the values separately. In the *Remark*s column for the added rows, the precise name of the commodity has to be given in English, with the local name in brackets and the potential processing, if applicable.

*Example: The data collector has several berries absent from the classification to declare: 3 g of unknown berries and 5 g of an indigenous berry commonly called "Mayapple", locally named "Beberri". The declaration would be:*

| Level 3 | Code | Mean (or high percentile…) | Remark |
|---|---|---|---|
| Berries and small fruits, nes | FB 0000* | 3 | |
| Berries and small fruits, nes | FB 0000* | 5 | Mayapple (Beberri), |

*The second row is a duplication of the first one.*

### How to differentiate between home prepared dishes and industrial prepared dishes?

All foods are basically separated into "Unprocessed[4]" and "Processed". The term "processed" includes any kind of processing technique other than the preservative techniques (declared independently, see below) and home-cooking. As soon as a food undergoes such processing, it goes under those "processed" items.

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[3] Not Elsewhere Specified
[4] Implicit if not mentioned

Some very common processing are designated properly (e.g "Bread"). As "nes" items, the lines into the worksheet can be duplicated if more refined information are available.

Example:

| Level 3 | Code | Mean (or high percentile…) | Remark |
|---------|------|---------------------------|--------|
| Pulses, processed, nes | VD 6000* | 4 | |
| Pulses, processed, nes | VD 6000* | 5 | Lentils, industrially cooked and prepared |

### How to report homemade recipes?

Every home made recipe should be broken down in its respective ingredients according to its respective proportion.

Data providers are encouraged to submit their national list of recipes as well.

*Examples: Spaghetti Bolognese should be broken down in pasta, meat, tomato sauce, herbs …etc… Shop suey should be broken down in bean sprouts, vegetables, meat, etc.*

If the breaking down is not possible, it falls into the composite foods case.

### How to report composite dishes?

Foods bought outside or from the industry are often multiple ingredients recipes, but the consumer is not able to report them separately. In this case, those foods are reported under the "Composite food" items, differentiated at level 3 by according to their main ingredient.

For the composite foods, other than "nes" items rows into the excel sheet can be duplicated to provide more refined information if available. Furthermore, the *Remark* column should be used to add any information about the ingredients involved.

### Example:

| Level 3 | Code | Mean (or high percentile…) | Remark |
|---------|------|---------------------------|--------|
| Cereal-based composite food | 16.1* | 2 | |
| Cereal-based composite food | 16.1* | 1.5 | Pizza (wheat-based crust, tomato paste, ham, |

| | | | cheese) |
|---|---|---|---|
| Processed meat and meat products | 08.0** | 3 | |
| Processed meat and meat products | 08.0** | 1.6 | Chili con carne (beef based, red beans) |

**How to classify a food item not mentioned anywhere on the food list and not fitting under any broad food group?**

The item "Other foods (foods which cannot be included in any other group)" is intended for foods which eventually cannot be included in any other of the given groups. It should be the ultimate solution. Details should be provided in the Remark field in English and local language in brackets.

**3. Guidance on the food consumption summary statistics parameters and related information (Columns in the worksheet)**

Food consumption data for acute and chronic exposure assessment shall be submitted in two separate files (called template_acute and template_chronic).

In general, surveys with only one data collection day should only submit data for the acute template and surveys with more than one data collection day should submit data for acute and chronic templates.

Three age groups should be provided separately according to the availability:

- General population (all groups of age including children)

- Children (<6 years old)

- Women in age of child bearing.

Separated columns are dedicated for each group on the same worksheets. For all groups, the age range must be declared in the "Survey_Details" sheet.

If the data provider has the food consumption data arranged by gender for each age group he can submit this information in addition.

The four first columns (*Portion reported*, *State of food reported*, *Unit of reporting* and *industrial food preservation*) have to be filled in for every row of data declared. They are necessary to make the link between the values declared and the corresponding Raw Agricultural Commodities quantities involved. Scroll-down menus are shown and, the data provider has to choose:

- If the values declared include the inedible portions of the food (peel…)

- If the values declared correspond to weight after cooking

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For those two parameters, if the data provider has, for a same item (a same row), several values from several treatments (portion and/or cooking), he has to duplicate the row to be able to declare those values with different parameters.

- Ideally, the consumption data should be provided in grams/kg body weight/day by dividing the consumption of each individual by its body weight. When the information is not available at individual level, the data provider should divide the levels of consumption by an average body weight for the corresponding age group.

- The fourth column reports on the industrial food preservation technique. This column should only be filled in when the food item has undergone any preservation processing before purchase ("None" value by default).

The last column gives the opportunity to include remarks on the classification as specified under section 2 C.or of any kind.

### a. Specificities with regard to the template_ACUTE

The parameters in the template ACUTE are inspired from the Large Portion templates used by the JMPR for acute dietary exposure assessment. The aim of this updated data collection template is to extend the JMPR practices' to hazards other than pesticide residues like microbiological hazards in a harmonized way.

High consumption values (97.5$^{th}$ percentile and maximum) should be derived from records of individual consumer days. For surveys collecting multiple days of consumption data per person, the individual consumer days are assumed to be independent observations in the derivation of upper percentiles as follows:

❖ If the survey includes multiple days per participant, only the valid consumer days on which consumption of the food of interest occurs should be used for the "Consumers only" calculations.

❖ If a survey participant has multiple valid consumer days, these consumer days should be considered as independent observations in the database and not averaged.

❖ The number of consumer days on which the percentile is based should be explicitly stated ("Number of consumer days for individual commodities"), as the purpose of the assessment may determine how these records are treated.

It is recommended to derive the 97.5th percentile when at least 120 consumer days are available from the survey. However Member States could submit percentiles based on less consumers and report the number of consumer days (case 1). **Alternatively** if food items (e.g. "Chicory leaves") has an insufficient number of consumer days (<120) , Member States can derive a more robust 97.5th percentile by aggregating them into the more generic food item (i.e. "Leafy vegetables, NES"). It does not prevent from deriving high percentiles at the 3rd level for other food items in the same category (case 2). In any case, Member States should provide the number of consumer days on which the percentile is based.

*Example: here are two alternative ways to declare the same dataset.*

*Case 1:*

| Level 3 item | Consumer days | 97.5<sup>th</sup> percentile (g/kgBW/d) |
|---|---|---|
| **Endive** | **146** | 102 |
| **Chicory leaves** | 100 | 65 |
| **Spinach** | 80 | 123 |
| **Leafy vegetables, nes** | 75 | 56 |

*Case 2:*

| Level 3 item | Consumer days | 97.5th percentile (g/kgBW/d) |
|---|---|---|
| **Endive** | **146** | 102 |
| **Chicory leaves** | | |
| **Spinach** | | |
| **Leafy vegetables, nes** | **150** | 103 |

*150 consumer days are reported with "Chicory leaves" <u>and</u> "Spinach" <u>and</u> "Leafy vegetables, nes" and their consumptions are summed under the single item "Leafy vegetables, nes".*

Some unit weights information have to be provided:

- U (RAC) is the unit weight of the Raw Agricultural Commodity. It has to be defined in words and weighted for each item declared. It has to be specified from how many items and what kind of statistic (mean, median…) the value comes from.

- Edible Portion has to be defined in words ("the fruit without the peel"…) and evaluated in percentage (e.g. from the RAC, 70 % of this fruit is edible). As for the U(RAC), the origins of the values are expected.

### b. Specificities with regard to the template CHRONIC

Until now the unique source of data for FAO/WHO international chronic exposure assessment was the *per capita* values derived from the FAO Stat data and known as GEMS/Food cluster diets. Compared with *per capita* data which are collected over a year, individual food consumption surveys provide data collected over at least 1 day and rarely more than a week.

Consumption values collected on a single day are considered not to be appropriate for the assessment of high chronic exposure because they are likely to lead to great overestimates of high percentiles, in particular for rarely consumed foods.

*Food consumption data collected on a single 24 hours recall or record should not be reported for chronic exposure.*

Levels of consumption should be reported for both the whole population and consumers only. For a considered food a survey includes generally consumers and non-consumers. A consumer is defined as a person consuming the considered food at least once during the survey duration. If the survey includes multiple days per participant, only the average consumption over the entire survey duration should be used. This average should include zero values for days when the food under consideration was not consumed.

*On a survey of 1000 subjects with 100 subjects in each respective age group, all consumptions including zeros should be used to calculate the consumption figures (i.e. mean, median and high percentiles) for the whole population. The number of subjects participating in the survey for each age group should be reported "subjects = 100".*

*On the same survey based on 100 subjects in a considered age group. if 20 of them are not consuming rice during the survey duration they should not be used to calculate the consumption for consumers only. For rice the reported results for the considered age group should mention "consumers = 80" and the consumption figures (i.e. mean, median and high percentiles) should be calculated only on the 80 consumers.*

For results based on at least 2 days of survey, values displayed should be derived from averaged consumptions over days.

*On a survey on 3 days, if rice was consumed at 250, 0 and 20 grams respectively on days 1, 2 and 3. The consumption level for long term risk should be 270 : 3 = 90 grams/day.*