Analytical Tool of developing a Saudi Food Composition Database

Basic elements & Instruction

November -2024

General Instruction

- This is a manual will be used as a guide to conduct the Analytical tool in Excel.
- Please use the 'Reference' in foot of the page as a guide help to more understanding for the stated point.
- UD = Undefined information according to the reference (study).
- NA = Not Applicable to answer for irrelevant information according to the reference (study) for a certain entry.
- FYI = For Your Information and no action is needed.

- **A#** = Appendix out the file.
  - **A1** = An Example of Parts of Plants That We Generally Consume.
  - **A2** = An Example Meat Cuts That We Generally Consume.
  - **A3** = An Example Poultry Meat Cuts That We Generally Consume.
  - **A4** = Food and Agriculture Organization of United Nations - Recipe and Other Calculations.
  - **A5** = FAO/INFOODS Guidelines for Converting Units, Denominators and Expressions Version 1.0.
  - **A6** = Chapter 7 From Food Composition Data Book (Second Edition) - Review of Methods of Analysis.

- **Please note that certain parts may vary in sequence inside Excel file than this instruction for organizational purposes, such as:**
  - Section (3.1.4.1.) will transfer to AT-1 in Excel because the information is per food not per component.

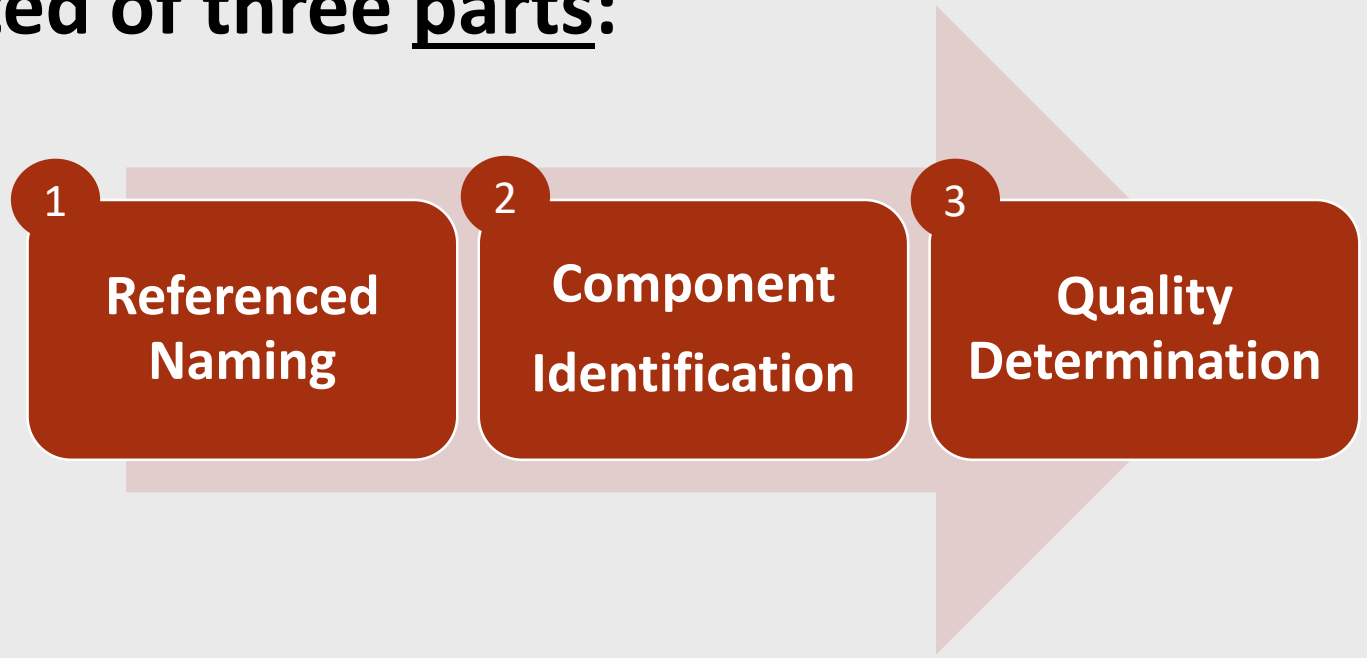
- **Please include only the component in the tool, if the study has another component, then you should skip it and not include it.**

- **Please note that some studies might include value for components from other or previous references as a comparison with the study results, these values should not be considered to include as an input in the tool.**

- **When a food product prepared for the purpose of the study it is considered Cooked not Manufactured.**

- **When certain information is not available in a reported literature and the input is ‘open Q’, please state (UD) or (NA) according to study information.**
- **ALL cell in Excel ‘AT-1’ and ‘AT-2&3’has to have a value (nothing left out) except for ‘NOTE’ cell.**
- **For ‘2.5. Expression’, usually it’s mentions in studies as (express as ….).**
- **For ‘3.2.Analytical Assurance’, you need to fill column ‘Name of laboratory’ as role:**
  1. If the ‘3.2.1.Name of laboratory’ stated in the study, then you will reported in the cell, color the cell in Yellow, and leave the column ‘3.2.2.Analytical Assurance’ without any choice.
  2. If the ‘3.2.1.Name of laboratory’ not stated, then you will Write ‘UD’ and choose ‘Analyzed with an internationally recognized method’ from ‘3.2.2.Analytical Assurance’ column.

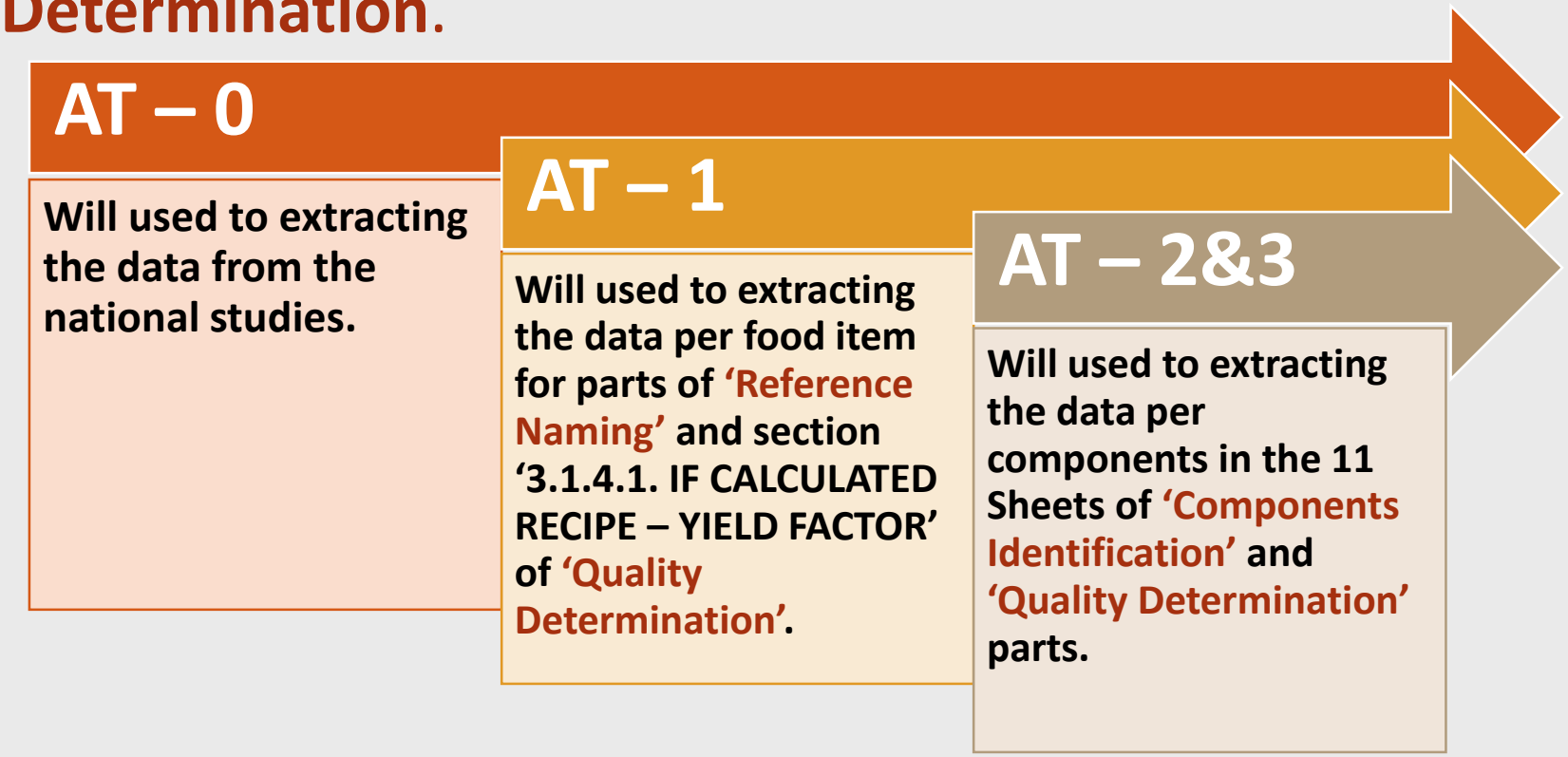
➢ The Tool generally is consisted of three parts:



➢ Definitions:

1. **Referenced Naming:** This represents all factors that are considered to determine each food name in the database.
2. **Food Component:** This represents the output information about food value, as stated in the references.
3. **Quality Determination:** This represents the information that will be used in the food matching determination process.

- **In Excel the tool divide to three parts:**
  - **AT-0** – Reference Studies.
  - **AT-1** – **Reference Naming** + Section '3.1.4.1. IF CALCULATED RECIPE – YIELD FACTOR' of **Quality Determination**
  - **AT-2&3** – 11 Sheets of **Components Identification** and **Quality Determination**.



1. Referenced Naming

1.1. FOOD NAME IN OWN LANGUAGE(S) – ARABIC

1.2. ENGLISH FOOD NAMES

1.3. SCIENTIFIC NAMES

1.4. FOOD CONDITION

1.5. FOOD EDIBILITY

1.6. EDIBLE/INEDIBLE PORTION

1.7. COOKING METHODS

1.8. ADDITIONAL PRINCIPALS FOR COOKING METHODS

1.9. FOOD PROCESSED DURING MANUFACTURING

1.10. COLOR

1.11. BIODIVERSITY

1.12. MATURITY STAGE

1.13. WILD VS. DOMESTICATED PLANTS AND ANIMALS

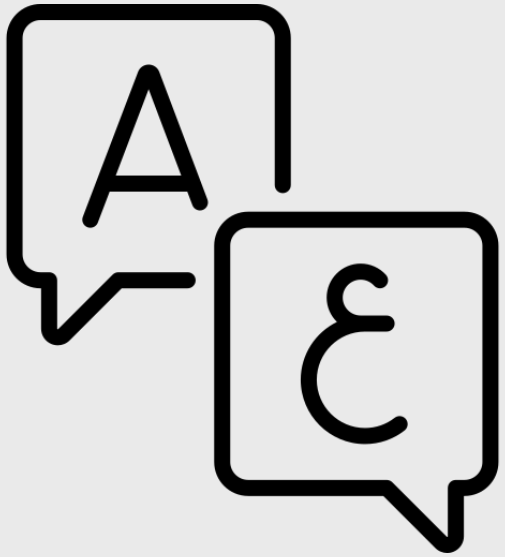
1.14. PART/SOURCE OF THE FOOD

1.15. FORTIFICATION/ENRICHMENT OF PROCESSED FOOD FORTIFICATION AND SUPPLEMENTATION

1.16. RECIPES INFORMATION

1.1. FOOD NAME IN OWN LANGUAGE(S) - ARABIC

❑ **Please write the name of the food in Arabic Language.**



Reference: FAO e-learning Academy course-Food Composition Data

1.2. ENGLISH FOOD NAMES

❑ **Please write the name of the food in English Language as stated in study.**

Reference: FAO e-learning Academy course-Food Composition Data

1.3. SCIENTIFIC NAMES

- Please write the scientific name of the food as stated in study.

Reference: FAO e-learning Academy course-Food Composition Data

1.4. FOOD CONDITION

❑ **Please choose one of the below input:**

1.4.1.FOOD CONDITION - 1	
Criteria	**Input**
Raw Food	R
Manufactured Food	M
Cooked food	C

Note

- **Please note that fresh and dried food will include in 'Raw Food' category.**
- **Please note that canned foods will include in 'Manufactured Food' category.**

FOOD CONDITION

❑ Please choose one of the below input:

1.4.2.FOOD CONDITION - 2	
Criteria	**Input**
Fresh	F
Dried	D
Processed	C
Prepared	P

Note FYI

- Processed indicate food that's changed in any way from its natural state. That includes washing, canning, freezing, adding ingredients to it, baking, cooking, or preparing by manufacturers.

E.g. cheese, tinned vegetables, bread, savory snacks (such as pasties), meat products, ready meals, cakes and biscuits.

- Prepared indicate food which has been prepared by human in home (households) or in restaurants (chefs) that sold to be eaten at home.

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

1.5. FOOD EDIBILITY

❑ Please choose one of the below input:

1.5.FOOD EDIBILITY	
Criteria	**Input**
Edible	E
Inedible	I

Note FYI

- Edible portions indicate the part of the food that is usually eaten and it'll be chose if the food was all edible.
  - For example; exclude the inedible part/s such as skin or pips of certain fruits and vegetables breast 'Chicken without skin' and 'Paprika without seeds'.
- Inedible portions indicate the part of the food that is usually do not eaten and it'll be chose if the food was include inedible part/s.
  - For example; stated or generalize the food indicate an inedible part/s such as ' Whole chicken' that mean is include bones and skin, and 'Rips' that mean is include bones and visible fat.

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

1.6. EDIBLE/INEDIBLE PORTION

❑ Please choose one of the below input:

EDIBLE PORTION	
Criteria	**Input**
1.6.1.Which parts are edible?	OPEN Q

INEDIBLE PORTION		
Criteria	**Input**	**1.6.2.Note**
1.6.2.Which parts are inedible?	**Specify from the drop list**	**If other, please state the name of inedible part**

A. Skin
B. Seeds
C. Peel
D. Head
E. Bones
F. Visible fat
G. Shell
H. Pits/stones
I. UD
J. NA
K. Other

Reference: FAO / INFOODS Guidelines -Guidelines for Food Matching Version 1.2

1.7. COOKING METHODS

❑ Please choose one of the below input:

1.7.COOKING METHODS		
Criteria	**Input**	**1.7.Note**
Boiling	A	**Please state any details about the method**
Water absorption	B	
Baking	C	
Earth oven	D	
Deep frying	E	
Shallow frying	F	
Steaming	G	
Roasting	H	
Grilling	I	
Microwave	J	

COOKING METHODS Cont.…		
Criteria	**Input**	**1.7.Note**
Braising	K	**Please state any details about the method**
Stewing	L	
Open-fire roasting	M	
Griddle or dry-frying	N	
Cooking in fire	O	
Tandoori	P	
Pressure cooking	Q	
Not Applicable	NA	
Other	T	

Reference: FAO/INFOODS Food Composition data production, management and use second edition

1.8. ADDITIONAL PRINCIPALS FOR COOKING METHODS

❑ Please choose one of the below input:

ADDITIONAL PRINCIPALS FOR COOKING METHODS	
Criteria	**Input**
1.8.1.Is the visible fat (e.g. meat) removed before or after cooking?	Yes
	No
	UD
	NA

ADDITIONAL PRINCIPALS FOR COOKING METHODS	
Criteria	**Input**
1.8.2.Is the peel/skin (e.g. vegetables/fish) removed before or after cooking?	Yes
	No
	UD
	NA

Reference: FAO/INFOODS Food Composition data production, management and use second edition

ADDITIONAL PRINCIPALS FOR COOKING METHODS

❑ Please choose one of the below input:

ADDITIONAL PRINCIPALS FOR COOKING METHODS		
Criteria	**Input**	**1.8.3.Note**
1.8.3.How much of the cooking water is absorbed (e.g. rice), or part of the dish (e.g. soup)?	**Specify from the drop list** A. 100 mL B. 150 mL C. 200 mL D. 250 mL E. 300 mL F. 350 mL G. UD H. NA I. Other	**If other, please state the amount of water in any unit or measure**

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

ADDITIONAL PRINCIPALS FOR COOKING METHODS

❑ Please choose one of the below input:

ADDITIONAL PRINCIPALS FOR COOKING METHODS		
Criteria	**Input**	**1.8.4.Note**
1.8.4.Is the cooking water discarded after cooking?	Yes	**Please state any details about the discarded cooking water**
	No	
	UD	
	NA	

ADDITIONAL PRINCIPALS FOR COOKING METHODS		
Criteria	**Input**	**1.8.5.Note**
1.8.5.Is salt added?	Yes	**Please state any details about the added salt**
	No	
	UD	
	NA	

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

ADDITIONAL PRINCIPALS FOR COOKING METHODS

❑ Please choose one of the below input:

ADDITIONAL PRINCIPALS FOR COOKING METHODS	
Criteria	**Input**
1.8.6.Which oil/fat is used for frying?	OPEN Q

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

1.9. FOOD PROCESSED DURING MANUFACTURING

❑ Please choose one of the below input:

FOOD PROCESSED DURING MANUFACTURING		
Criteria	**Input**	**1.9.1.Note**
1.9.1.Are food components containing ingredients added in processing, either for flavoring (e.g. salt, seasonings, etc.)	Yes	**Please state the added ingredients in processing**
	No	
	UD	
	NA	

FOOD PROCESSED DURING MANUFACTURING		
Criteria	**Input**	**1.9.2.Note**
1.9.2.Are food components containing ingredients added as functional properties (e.g. preservatives, emulsifiers, anticaking agents, etc.)?	Yes	**Please state the added functional properties**
	No	
	UD	
	NA	

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

FOOD PROCESSED DURING MANUFACTURING

❑ Please choose one of the below input:

FOOD PROCESSED DURING MANUFACTURING		
Criteria	**Input**	**1.9.3.Note**
1.9.3.Is the food canned/preserved in syrup, juice, brine, or oil?		**If other, please state the source of canned/preserved food**
• In syrup	S	
• In juice	J	
• In brine	B	
• In oil	O	
• No	No	
• Other	T	
• Information undefined	UD	
• Information not applicable	NA	

Note FYI

Brine is salt and water and often described as a percentage (e.g. 'make a seven percent brine'), which refers to the ratio of salt to water.

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

1.10. COLOR

❑ Please choose one of the below input:

COLOR		
Criteria	**Input**	**1.10.Note**
1.10.What is the color/intensity of the color of the food?	**Specify from the drop list** A. Yellow B. Orange C. Yellow orange D. Red E. Pink F. Blue G. Purple H. Green I. Light green J. Dark green K. Brown L. White M. reddish-white N. Black O. UD P. NA Q. Other	**If other, please state the color /intensity of the color of the food**

1.11. BIODIVERSITY

❑ Please choose one of the below input:

BIODIVERSITY		
Criteria	**Input**	**1.11.Note**
1.11.Can the variety/cultivar (plants) or species/breed (animal) of the food be identified?	Yes	**Please state the variety or breed**
	No	
	UD	
	NA	

Note FYI

- **An example of variety/cultivar (plants) include Mango, Badami or Apple, Granny Smith or Apple, own country or Apple, imported or Apple, all varieties.**
- **An example of species/breed (animal) include Mjahim camel milk or Wadah camel milk or Safara camel milk.**

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

1.12. MATURITY STAGE

❑ Please choose one of the below input:

MATURITY STAGE		
Criteria	**Input**	**1.12.1.Note**
1.12.1.Is it ripe or unripe, e.g. mango?	Yes	Please state the details
	No	
	UD	
	NA	

MATURITY STAGE		
Criteria	**Input**	**1.12.2.Note**
1.12.2.Is it an immature or mature form, e.g. beans?	Yes	Please state the details
	No	
	UD	
	NA	

1.12. MATURITY STAGE

❑ **Please choose one of the below input:**

MATURITY STAGE	
Criteria	**Input**
1.12.3.What is the age of the animal, is it young or adult (e.g. veal versus beef)?	OPEN Q **Please state the details as stated in the study.**

1.13. WILD vs. DOMESTICATED PLANTS and ANIMALS

❑ Please choose one of the below input:

WILD vs. DOMESTICATED PLANTS and ANIMALS		
Criteria	**Input**	**1.13.Note**
1.13.Is it wild or domesticated?	Yes	Please state the details
	No	
	UD	
	NA	

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

1.14. PART/SOURCE OF THE FOOD

A1

❑ Please choose one of the below input:

PART/SOURCE OF THE FOOD		
Criteria	**Input**	**1.14.1.Note**
1.14.1.Which part of the animal/plant is consumed?	**Specify from the drop list**	**If other, please state the name of inedible part**

A. Vegetables
B. Roots
C. Stem
D. Leaves
E. Flowers
F. Fruits
G. Cereals
H. Tea
I. Coffee
J. Oil
K. Spices
L. Milk
M. Eggs
N. Meat
O. UD
P. NA
Q. Other

Note FYI

- An example of the parts in the link: Parts of plant

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

1.14. PART/SOURCE OF THE FOOD

A2 A3

❑ Please choose one of the below input:

PART/SOURCE OF THE FOOD		
Criteria	**Input**	**1.14.2.Note**
1.14.2.Which meat/poultry cut is consumed?	**Specify from the drop list**	**If other, please state the name of inedible part**

A. Breast
B. Wings
C. Legs
D. Whole chicken
E. Drumstick
F. Thigh
G. Neck
H. Feet
I. Gizzard
J. Liver
K. Heart
L. TENDERLOIN
M. TOP SIRLOIN
N. STRIP LOIN
O. RIB STEAK & RIB EYE
P. T-BONE
Q. BOTTOM SIRLOIN TRI-TIP

N. FLANK
O. BOTTOM SIRLOIN FLAP
P. HANGER
Q. SKIRT
R. UD
S. NA
T. Other

Note FYI

- An example meat cut in the link: Meat cut & Poultry Meat Cuts

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

1.15. FORTIFICATION/ENRICHMENT OF PROCESSED FOOD FORTIFICATION AND SUPPLEMENTATION

❑ **Please choose one of the below input:**

FORTIFICATION/ENRICHMENT OF PROCESSED FOOD FORTIFICATION AND SUPPLEMENTATION		
Criteria	**Input**	**1.15.1.Note**
1.15.1.Is the food fortified/enriched?	Yes	**Please state what is the food fortified/enriched**
	No	
	UD	

FORTIFICATION/ENRICHMENT OF PROCESSED FOOD FORTIFICATION AND SUPPLEMENTATION	
Criteria	**Input**
1.15.2.Which fortification/enrichment standards are used in the country?	OPEN Q **Please state the details as stated in the study**

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

FORTIFICATION/ENRICHMENT OF PROCESSED FOOD FORTIFICATION AND SUPPLEMENTATION

❑ **Please choose one of the below input:**

FORTIFICATION/ENRICHMENT OF PROCESSED FOOD FORTIFICATION AND SUPPLEMENTATION	
Criteria	**Input**
1.15.3.To which level are food components added? E.g. 25 % of the recommended daily value or exact amount is provided.	OPEN Q

FORTIFICATION/ENRICHMENT OF PROCESSED FOOD FORTIFICATION AND SUPPLEMENTATION		
Criteria	**Code**	**1.15.4.NOTE**
1.15.4.Is the food imported from a country where the food is generally fortified/enriched?	Yes	**Please state the details as stated in the study**
	No	
	UD	
	NA	

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

FORTIFICATION/ENRICHMENT OF PROCESSED FOOD FORTIFICATION AND SUPPLEMENTATION

❑ Please choose one of the below input:

FORTIFICATION/ENRICHMENT OF PROCESSED FOOD FORTIFICATION AND SUPPLEMENTATION		
Criteria	**Input**	**1.15.5.Note**
1.15.5.Does the food/dish contain an ingredient that maybe fortified/enriched?	Yes	**Please state the details**
	No	
	UD	
	NA	

FORTIFICATION/ENRICHMENT OF PROCESSED FOOD FORTIFICATION AND SUPPLEMENTATION		
Criteria	**Input**	**1.15.6.Note**
1.15.6.Does the food/dish contain Reduction of components? (e.g. sodium, sugar for `light foods`)?	Yes	**Please state the details**
	No	
	UD	
	NA	

Reference: FAO / INFOODS Guidelines-Guidelines for Food Matching Version 1.2

1.16. RECIPES INFORMATION

A4

❑ Please choose one of the below input:

RECIPES INFORMATION	
Criteria	**Input**
1.16.1.Ingredient weight/ quantities in grams or household measurements in edible portion	OPEN Q

RECIPES INFORMATION	
Criteria	**Input**
1.16.3.Preparation method	OPEN Q

RECIPES INFORMATION	
Criteria	**Input**
1.16.2.Ingredient weight in edible portion	OPEN Q

Reference: FAO/INFOODS Recipes and other calculation

RECIPES INFORMATION

A4

❑ Please choose one of the below input:

RECIPES INFORMATION	
Criteria	**Input**
1.16.4.What is the amount of weight loss or yield factor ?	OPEN Q

RECIPES INFORMATION	
Criteria	**Input**
1.16.5.Any further information on density/ specific gravity, edible part/ refuse/ waste	OPEN Q

RECIPES INFORMATION		
Criteria	**Input**	**1.16.7.Note**
1.16.6.How is the dish analyzed?	**Specify from the drop list** A. By each ingredient B. As a whole (by recipe) C. UD D. NA E. Other	**If other, please state the details**

Reference: FAO/INFOODS Recipes and other calculation

A4

RECIPES INFORMATION

❑ Please choose one of the below input:

RECIPES INFORMATION	
Criteria	**Input**
1.16.7.what are the applied retention factors? (If is not stated, please write “not stated” in 000)	OPEN Q

RECIPES INFORMATION	
Criteria	**Input**
1.16.8.what is the applied recipe calculation method? (If is not stated, please write “not stated” in 000)	OPEN Q

Reference: FAO/INFOODS Recipes and other calculation

2. Component Identification

2.1. COMPONENT DEFINITION

2.2. VALUE

2.3. UNIT

2.4. DENOMINATOR

2.5. EXPRESSION

2.1. COMPONENT DEFINITION

❑ **Please state the full component definition as stated in the study.**

COMPONENT DEFINITION	
Criteria	**Input**
2.1.Component definition	**OPEN Q**

Note

- **Please, write the full definition of the component exactly as stated in the study,** for example: calcium, vitamin C as sum of ascorbic acid and dehydroascorbic acid, etc.

2.2. VALUE

❑ **Please state the value of the component**

VALUE	
Criteria	**Input**
2.2.1.Value	**OPEN Q (NUMBER INPUT ONLY)**

Note

- **Please, write the value complete as stated in the study with the every decimal (e.g. 0.376453) and avoid decimal approximation (e.g. 0.4 or 0.38).**

VALUE

❑ Please state the value type

VALUE TYPE		
Criteria	**Input**	**Note**
2.2.2.Value type	**Specify from the drop list**	**If other, please state the details**

Drop list of the value types are in next slide

Note

Please be aware that some studies may state words such as "Trace" or "Not Detected" for value of the nutrients, you need to write:

- Tr = Trace
- ND = Not Detected

- **In note, please state the details for the value type as stated in the study.** For example:
  - Under limit of quantification
  - Under limit of detection
  - Half of limit of quantification
  - Half limit of detection

Drop list of value types:

Value > (more than)
Value < (less than)
Trace (Tr)
Non Detected (ND)
Mean
Median
Mode
Other

2.3. UNITS

A5

❑ Please choose one of the below Input:

UNITS		
Criteria	**Input**	**2.3.NOTE**
2.3.Units	**Specify from the drop list**	**If other, Please state unit not from the list and any additional information**

Drop list of units are in next slide

Note

FYI **Units:** quantify the amount of a component, standardized for each component (e.g. gram, milligram and microgram)

- **Please, be aware of the other column to make sure about making the correct food component**
- **If the unit not find in the drop list, please:**
  1. **Choose "other" from the list**
  2. **State the unit in "NOTE" column**

Reference: FAO / INFOODS Guidelines for Converting Units, Denominators and Expressions Version 1.0

Drop list of units:

kg (Kilogram)
g or gm (gram)
µg or mcg (microgram)
mg (milligram)
ng (nanogram)
pg (picogram)
Bq (Becquerel)
L (Liter)
mL (milliliter)
µL (microliter)
mmol (millimol)
MJ (megajoules)
kJ (kilojoule)
kcal (kilocalorie)
% (percent)
ppb (parts per billion)
ppm (parts per million)
IU (international units)
0:0 (Ratio)
other

A5

Reference: FAO / INFOODS Guidelines for Converting Units, Denominators and Expressions Version 1.0

2.4. DENOMINATORS

A5

❑ Please choose one of the below Input:

DENOMINATORS		
Criteria	**Input**	**2.4.NOTE**
2.4.Denominators	**Specify from the drop list**	**If other, Please state denominators not from the list and any additional information**

Drop list of Denominators are in next slide

Note FYI

- **Denominators:** indicates in which food quantify the component can be found.
- **Normally, in a FCT/FCDB "per 100 g edible portion on fresh weight basis" is used for foods and beverages.**
- **It is also called matrix unit or bases of expression.**
- **If the denominators not find in the drop list, please:**
  1. **Choose "other" from the list**
  2. **State the denominators in "NOTE" column**

Reference: FAO / INFOODS Guidelines for Converting Units, Denominators and Expressions Version 1.0

Drop list of Denominators:

A5

per g total nitrogen
per 100 g nitrogen
per 100 g total amino acid
per 100 g protein
Per g total protein of edible portion on fresh weight basis
Per g total protein of edible portion on dry weight basis

per g total fatty acids
per 100 g total fatty acids
per g fat as triglyceride equivalent
per 100 g fat as triglyceride equivalent
per g total fat
per 100 g total fat
Per g total lipid of edible portion on fresh weight basis
Per g total lipid of edible portion on dry weight basis
Per g total lipid (edible and inedible food) on fresh weight basis

per 100 g edible portion
per kg edible portion
per 100 g total food
per kg total food
per 100 g total food (edible and inedible parts of the food) on fresh weight basis
per 100 g total food (edible and inedible parts of the food) on fresh dry basis
per 100 g dry weight
per 100 g dry matter of edible food
per kg dry weight
per L food volume
per 100 mL food volume
Other

Reference: FAO / INFOODS Guidelines for Converting Units, Denominators and Expressions Version 1.0

EXAMPLES OF UNITS AND DENOMINATORS STATED TOGETHER:

Unit	"per" or "/"	of	on
• Kg • mg • mcg • G • L • % • kcal • IU	• per 100 g • per g total lipid • per 100 g edible portion • per L food volume • mg/L • µg/100g • mg/g • g/kg	• of total food (edible and inedible parts of the food) • of fatty acids • of total triglycerides of protein • of nitrogen • of seed flour • of Non-Starch Polysaccharide (NSP)	• on **fresh weight basis** • on **dry weight basis** • OR **dry matter** basis • OR per 100 g **dry matter**

Unit **Denominator**

A5

2.5. EXPRESSION

❑ Please choose one of the below Input:

EXPRESSION	
Criteria	**Input**
2.5.Expression	**OPEN Q**

Note FYI

- **The information about expression could be found in the full definition of the component,** For example:
  - Carbohydrates available: expressed in monosaccharide equivalents, by weight, in anhydrous form.
  - Total vitamin A activity expressed in mcg retinol activity equivalent (RAE) OR expressed in mcg retinol equivalent (RE).

Reference: FAO / INFOODS Guidelines for Converting Units, Denominators and Expressions Version 1.0

3. Quality Determination

3.1. SOURCE TYPES

3.2. ANALYTICAL ASSURANCE

3.3. LEVEL OF CONFIDENCE

3.1. SOURCE TYPES

❑ Please choose one of the below Input:

3.1.SOURCE TYPES	
Criteria	**Input**
Analyzed	60
Calculated	50
Imputed	40
Calculated recipe	30
Borrowed from other source	20
Presumed according to standard rules or Presumed as zero value	10
Not determined (Estimated or Guessed)	0

Reference: Chapter 1 from Food Composition data book (Second edition): https://www.fao.org/4/y4705e/y4705e06.htm

If The Previous choice is → ANALYZED

3.1.1.IF ANALYZED	
Criteria	**Input**
3.1.1.Analytical method	**OPEN Q**

Note FYI

Examples of analytical method statement:

- Determined by acid detergent method
- Determined gravimetrically by the AOAC total dietary fiber method
- Determined by bioassay
- Determined by microbiological assay
- Determined by HPLC
- The analytical method is a mixed solvent extraction
- Determination via Kjeldahl, mixed methods
- Derived by analysis using continuous extraction
- According to the AOAC standard method

Reference: Chapter 6 from Food Composition data book (Second edition): https://www.fao.org/4/y4705e/y4705e11.htm

If The Previous choice is → CALCULATED

A5

3.1.2.IF CALCULATED	
Criteria	**Input**
3.1.2.1.Calculation method	**OPEN Q**
3.1.2.2.Conversion factors, if applied	**OPEN Q**

Note FYI

- **Calculated value** is the nutrient values that calculated for recipes based on Nutrient content of the ingredients and Preparation factors which are, yield factor and nutrient retention factors, or for specific energy values.

Examples of calculation method statement:

- calculated from total nitrogen
- calculated by summation of the vitamin A activities of retinol and the active carotenoids
- calculated as sum of hydrous amino acids (including water)
- calculated from the energy-producing food components

- **For Conversion factors please back to the A5.**

Reference: Chapter 1 from Food Composition data book (Second edition): https://www.fao.org/4/y4705e/y4705e06.htm

If The Previous choice is → IMPUTED

A4

3.1.3.IF IMPUTED	
Criteria	**Input**
3.1.3.Imputation and adjustment method	**OPEN Q** **please state the Imputation and adjusting method if stated**

Note FYI

- **Imputed values** is the values that estimates derived from analytical data available for similar foods and may also be derived by calculation from incomplete or partial analyses of a food.

For example:

- the calcium content available in white beans but not in black beans
- adjusting moister content from dry to fresh
- carbohydrate or moisture by difference
- sodium derived from chloride values
- chloride calculated from the value for sodium

Reference: Chapter 1 from Food Composition data book (Second edition): https://www.fao.org/4/y4705e/y4705e06.htm

If The Previous choice is → CALCULATED RECIPE – YIELD FACTOR

3.1.4.1.IF CALCULATED RECIPE – YIELD FACTOR	
Criteria	**Input**
3.1.4.1.1 Wight of total raw ingredients	**OPEN Q** **please state the weight of each ingredient per g (eg. Camel meat= 680g, water=30g, …..etc. and total ingredients weight= 45g)**
3.1.4.1.2 Total weight for the whole recipe (as cooked, prepared, or ready to eat)	**OPEN Q** **please state the weight whole recipe per g**
3.1.4.1.3 The yield factor for the whole recipe	**OPEN Q** **please state the yield factor for whole recipe per g**

Reference: Chapter 1 from Food Composition data book (Second edition): https://www.fao.org/4/y4705e/y4705e06.htm

If The Previous choice is → CALCULATED RECIPE – NUTRIENT RETENTION FACTOR

3.1.4.2.IF CALCULATED RECIPE – NUTRIENT RETENTION FACTOR	
Criteria	**Input**
3.1.4.2.1 Nutrient content per raw ingredients	**OPEN Q** **please state the nutrient content for each raw ingredients in g (eg. Camel meat= 680g, water=30g, …..etc. and total ingredients weight= 45g)**
3.1.4.2.2 Nutrient content per whole recipe (as cooked, prepared, or ready to eat)	**OPEN Q** **please state the nutrient content for whole recipe in 100g**

Reference: Chapter 1 from Food Composition data book (Second edition): https://www.fao.org/4/y4705e/y4705e06.htm

If The Previous choice is → BORROWED FROM OTHER SOURCE

3.1.5.IF BORROWED FROM OTHER SOURCE	
Criteria	**Input**
3.1.5.Data source	**OPEN Q** **please state the reference or the source of the values, usually found in the literature review part**

Note FYI

- Borrowed values is the nutrient values that taken from other FCTs/FCDBs, For example: international Experience, Expertise, Standards guidelines and tools.

FCTs: Food Composition Tables.
FCDBs: Food Composition Databases.

Reference: Chapter 1 from Food Composition data book (Second edition): https://www.fao.org/4/y4705e/y4705e06.htm

A4

If The Previous choice is → PRESUMED ACCORDING TO STANDARD RULES OR PRESUMED AS ZERO VALUE

3.1.6.IF PRESUMED ACCORDING TO STANDARD RULES OR PRESUMED AS ZERO	
Criteria	**Input**
3.1.6.The standard role	**OPEN Q** **please state the standard role, if stated**

Note FYI

- **Presumed values** is the nutrient values that can be assumed as being Zero according to current general knowledge, For example: plant food has No cholesterol.

Reference: Chapter 1 from Food Composition data book (Second edition): https://www.fao.org/4/y4705e/y4705e06.htm

3.2. ANALYTICAL ASSURANCE

A6

❑ **Please note that this will fill just in case if the source type was analyze**

3.2.1.NAME OF LABORATORY	
Criteria	**Input**
3.2.1.Name of laboratory	**OPEN Q** **please state the name of laboratory as stated if found and Write 'UD' if Undefined**

3.2.2.ANALYTICAL ASSURANCE	
Criteria	**Input**
Analyzed with an internationally recognized method, a quality assurance system was applied	40
Analyzed with un-internationally **recognized** method	30
Analyzed with an internationally **unrecognized** method	20
Analyzed **without** a clearly stated method	10

Reference: Chapter 6 from Food Composition data book (Second edition): https://www.fao.org/4/y4705e/y4705e11.htm

3.3. LEVEL OF CONFEDENCE

❑ **Please note that this requirement will be auto-calculated in the Excel tool.**

3.3.LEVEL OF CONFEDENCE	
Criteria	**Input**
High confidence	H
Good confidence	G
Medium confidence	M
Low confidence	L
No confidence	N