



WORKSHOP

Total Diet Studies: Better Data - Better Decisions

Food sampling

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The food shopping list

A detailed list of food products to be purchased by food item and that will form a representative sample of the total diet in a specific population group according to the TDS Food List. The food shopping list should indicate, as appropriate, type, variety, brand, number of items, and amount in grams, places, time, frequency, and seasonality, (Report European TDS Vocabulary)

1) Characterizing the TDS food list

Background information:

- Food consumption data (food supply – food balance sheets FBS, household food availability – household budget survey HBS, food intake – individual dietary survey IDS)
- Food monitoring programmes
- Warning systems (R.A.S.F.F.)
- Country specific characteristics: regions, climate and seasons, relevant geographical and socio-economic anthropic strata
- Statistics on access to food: trade, retailing system, catering system
- Ancillary data:
 - food: food safety regulation, food products databases/market share, recipes and preparation methods database
 - consumer: food style surveys including consumer's choice (propensity) and food procurement habits

1) Characterizing the TDS food list

Procedures:

- desk analysis for identifying the reference diet for the selected population group,
- applying EFSA criteria to select representative food items (90% of the diet, >5% consumer rate)
- including relevant food items excluded at quantitative level, but considered important for the targeted substances and/or population groups

Tools:

- Generalised core food list (FoodEX2 1st-4th level), possible automated food selection

Main steps

2) Sampling plan

Which (food products - variety/branded food by food category, food group)

Where (region, type of shop/deliver)

When purchasing (season)

2) Sampling plan

Background information:

- Relevant strata
- Retailing system
- Market share
- Food list evidencing common/local food products; fresh/processed; variation by age-gender/population/stratum specific

Procedures:

- Shops/deliverers selection (extraction from inherent databases, random walking, GDO/small shops)

Tools:

- Shopping list: food category, amount to purchase by relevant parameters (which, where, when), variety (fresh food)/brand(processed food)

Main steps

3) Food products collection

Purchasing food products

Shopping bag/market basket

Transportation

Storage

Recording information

3) Food products collection

Background information:

- Sampling plan
- Food list and ancillary information

Procedures:

- Criteria to select food products within the shop

Tools:

- Letter of presentation
- Devices (cooler bags; photographic machine)
- Criteria for in shop selection
- Food form to record information on purchased food products (obligatory, recommended, and voluntary information)
- Data entry software and hardware

Options

Different options can be considered in each step:

- Type of food consumption data (IDS, HBS, FBS, other surveys) (step 1)
- Methods of shops selection (e.g., using information on food habits, building/using existing datasets, random walking)
- Methods of food products selection (e.g., market share based, shelf based, reasoned/random)

The solution adopted in a certain step will influence the subsequent one(s). The most important aspect is to take accurate notes using the prepared checklists including the possible options and the amount per type of food category.

Bread (unpacked) intake (g/day/per-capita)

| | Age class (years) | n | Mean | Standard deviation | Median/P50 | P95 | P99 | consumers | consumer rate % |
|---------|----------------------------------|-------------|------------|--------------------|------------|------------|------------|-------------|-----------------|
| FEMALES | Infants and toddlers (0-2 years) | 23 | 19 | 29 | 0 | 78 | 86 | 8 | 35% |
| | Children (3-9 years) | 99 | 70 | 56 | 59 | 166 | 240 | 88 | 89% |
| | Adolescents (10-17 years) | 139 | 85 | 64 | 75 | 206 | 240 | 126 | 91% |
| | Adults (18-64 years) | 1245 | 86 | 63 | 75 | 210 | 260 | 1134 | 91% |
| | Elderly (65-97 years) | 316 | 102 | 74 | 90 | 240 | 315 | 292 | 92% |
| | TOTAL | 1822 | 87 | 66 | 75 | 210 | 270 | 1648 | 90% |
| MALES | Infants and toddlers (0-2 years) | 29 | 17 | 29 | 0 | 90 | 95 | 13 | 45% |
| | Children (3-9 years) | 94 | 77 | 65 | 62 | 185 | 295 | 84 | 89% |
| | Adolescents (10-17 years) | 108 | 121 | 81 | 113 | 280 | 370 | 105 | 97% |
| | Adults (18-64 years) | 1068 | 127 | 85 | 115 | 285 | 375 | 1015 | 95% |
| | Elderly (65-97 years) | 202 | 138 | 91 | 120 | 299 | 448 | 195 | 97% |
| | TOTAL | 1501 | 123 | 86 | 110 | 280 | 375 | 1412 | 94% |
| ALL | Infants and toddlers (0-2 years) | 52 | 18 | 28 | 0 | 86 | 95 | 21 | 40% |
| | Children (3-9 years) | 193 | 74 | 61 | 60 | 180 | 290 | 172 | 89% |
| | Adolescents (10-17 years) | 247 | 101 | 74 | 88 | 230 | 330 | 231 | 94% |
| | Adults (18-64 years) | 2313 | 105 | 77 | 91 | 248 | 335 | 2149 | 93% |
| | Elderly (65-97 years) | 518 | 116 | 82 | 100 | 260 | 375 | 487 | 94% |

Bread (unpacked) intake (g/kg body weight/day/per-capita)

| | Age class (years) | n | Mean | Standard deviation | Median/P50 | P95 | P99 |
|---------|----------------------------------|-------------|-------------|--------------------|-------------|-------------|-------------|
| FEMALES | Infants and toddlers (0-2 years) | 23 | 1.64 | 2.54 | 0.00 | 6.62 | 7.83 |
| | Children (3-9 years) | 99 | 2.82 | 2.39 | 2.48 | 7.50 | 13.00 |
| | Adolescents (10-17 years) | 139 | 1.78 | 1.36 | 1.60 | 4.11 | 6.60 |
| | Adults (18-64 years) | 1245 | 1.41 | 1.05 | 1.24 | 3.38 | 4.38 |
| | Elderly (65-97 years) | 316 | 1.61 | 1.19 | 1.44 | 3.92 | 4.85 |
| | TOTAL | 1822 | 1.55 | 1.28 | 1.35 | 3.87 | 5.63 |
| MALES | Infants and toddlers (0-2 years) | 29 | 1.32 | 2.19 | 0.00 | 7.04 | 7.88 |
| | Children (3-9 years) | 94 | 3.09 | 2.82 | 2.59 | 8.50 | 16.47 |
| | Adolescents (10-17 years) | 108 | 2.21 | 1.52 | 2.00 | 5.90 | 6.30 |
| | Adults (18-64 years) | 1068 | 1.64 | 1.12 | 1.49 | 3.73 | 5.18 |
| | Elderly (65-97 years) | 202 | 1.78 | 1.16 | 1.63 | 3.65 | 5.62 |
| | TOTAL | 1501 | 1.79 | 1.40 | 1.56 | 4.09 | 6.25 |
| ALL | Infants and toddlers (0-2 years) | 52 | 1.46 | 2.33 | 0.00 | 7.04 | 7.88 |
| | Children (3-9 years) | 193 | 2.95 | 2.60 | 2.50 | 7.63 | 13.18 |
| | Adolescents (10-17 years) | 247 | 1.97 | 1.44 | 1.75 | 4.80 | 6.60 |
| | Adults (18-64 years) | 2313 | 1.52 | 1.09 | 1.36 | 3.57 | 4.80 |
| | Elderly (65-97 years) | 518 | 1.68 | 1.18 | 1.52 | 3.84 | 5.17 |

Bread (unpacked) shopping places by geographical areas (North-West, North-East, Centre, South & Islands)

| GEOGRAPHICAL AREA | 1.traditional shop | 2.supermarket | 3.street market | 4.bakery | 5.organic shop | 6.home delivery | n.r. |
|-------------------|--------------------|---------------|-----------------|-------------|----------------|-----------------|-------------|
| 1.NORTH-WEST | 73.8% | 14.2% | 0.0% | 2.5% | 0.0% | 3.3% | 6.3% |
| 2.NORTH-EAST | 79.7% | 11.6% | 0.0% | 4.1% | 0.4% | 0.8% | 3.3% |
| 3.CENTRE | 63.9% | 22.7% | 1.3% | 1.7% | 0.0% | 2.5% | 8.0% |
| 4.SOUTH & ISLANDS | 66.7% | 14.1% | 4.4% | 8.5% | 0.0% | 0.0% | 6.3% |
| Total | 70.7% | 15.3% | 1.7% | 4.6% | 0.1% | 1.6% | 6.0% |

Bread (packed) shopping places by geographical areas (North-West, North-East, Centre, South & Islands)

| | | | | | | | |
|-------------------|-------------|--------------|-------------|-------------|-------------|-------------|--------------|
| 1.NORTH-WEST | 2.2% | 34.9% | 0.0% | 0.3% | 0.3% | 0.5% | 61.9% |
| 2.NORTH-EAST | 4.1% | 56.8% | 0.0% | 0.4% | 0.4% | 0.0% | 38.2% |
| 3.CENTRE | 2.9% | 37.4% | 0.4% | 0.0% | 0.0% | 0.8% | 58.4% |
| 4.SOUTH & ISLANDS | 7.1% | 33.3% | 1.2% | 0.5% | 0.0% | 0.0% | 57.9% |
| Total | 4.3% | 39.1% | 0.5% | 0.3% | 0.2% | 0.3% | 55.4% |

Example: one food category in Italy

Bread – food products

http://www.inran.it/710/l_consumi_alimentari_INRAN-SCAI_2005-06.html

| | |
|------------------------------|----------------------------------|
| FRISELLA PANE | Bread, «frisella» type |
| PANE AL LATTE | Bread, milk dough |
| PANE ALL OLIO DIVERSE MISURE | Bread, oil dough |
| PANE AZIMO | Bread, unleavened |
| PANE BISCOTTATO APROTEICO | Toasted bread, protein free |
| PANE CARASAU SARDO | Bread, «carasau» type |
| PANE CON PATATE | Bread with potatoes in the dough |
| PANE DI FARRO | Spelt flour bread |
| PANE DI GRANO DURO | Durum wheat bread |
| PANE DI KAMUT | Kamut bread |
| PANE DI MAIS | Corn bread |
| PANE DI SEGALE | Rye bread |
| PANE DI SOIA | Soy flour bread |
| PANE INTEGRALE | Wholemeal bread |
| PANE PAN BRIOSCE NON FARCITO | Sandwich bread (packed) |
| PANE ROSETTA FARINA TIPO 00 | Bread, 00 flour, type «rosetta» |
| PANE SCIAPO | Bread without salt |
| PANE SENZA GLUTINE | Bread, gluten free |
| PANE TIPO 0 | Bread, 0 flour type |
| PANE TIPO 00 | Bread, 00 flour type |
| PANE TIPO 1 | Bread, 1 flour type |

| Mandatory information | Motivation | Notes |
|---------------------------------|---|---|
| Sample code | To ensure the compliance with the specific food list | |
| FoodEX2 coding | Common classification system | Foodex 2 provides food group and subgroups until level 4, so it is not necessary |
| Identification of the food shop | Sample qualification for representativeness | It can be his is quite imput in the first “collection report” and copied and pasted in the following one. The important thing is that all sheets related to one shop are put together. |
| Date of collection | Self-explanatory | |
| Bar code for packed foods | A number of information are coded including country of import (the first two digits according to the GS1 software). This does not ensure the origin of ingredients but the import country where the food product is commercialised. | It is not completely reliable for all the details of a product, but to make faster the registration when shopping it allows for recognising the specific food. The shopper can fill in the rest of the form later, in a less hectic situation |
| Origin of the product | crucial element for the interpretation for possible contaminants (or different composition when talking about nutrients). | Not always available “UE/NON UE” is the notation currently used |
| Description of the food product | Food name on the shelf Food name on the package | |
| Quantity | Number of pieces, weight(s) | AS an example, when a medium is used the weights are total, and drained |

| Recommended information | Motivation | Notes |
|---|--|--|
| Description of food characteristics | Classification can vary a lot from person to person even though in the same country, a good description makes easier to a) identify the right food code; b) to select the FACETS | Sometimes the writing style can be very limited. Also in this case a photo can help the subsequent recording |
| Description of the position in the shop | To select from the recommendations | A list of recommendation on how to select the food in the shop |

| Voluntary information | Motivation | Notes |
|---|---|---|
| Details about the composition of the food | Each food group/subgroup has characteristic to describe to identify aspects that can be considered in the laboratory analysis task (e.g., occurrence of fats, salt, etc.) | The more precise is the description the higher will be the possibility to get a correct interpretation of the results and to use those information for future study (e.g. rotation of brands, substitution of no more commercialised foods, etc.) |

Testing an «evidence based» formulation for a generalised core food list

Literature: already formulated food list

Comprehensive database: reference diet

FoodEx 2: food coding system allowing for linking different items

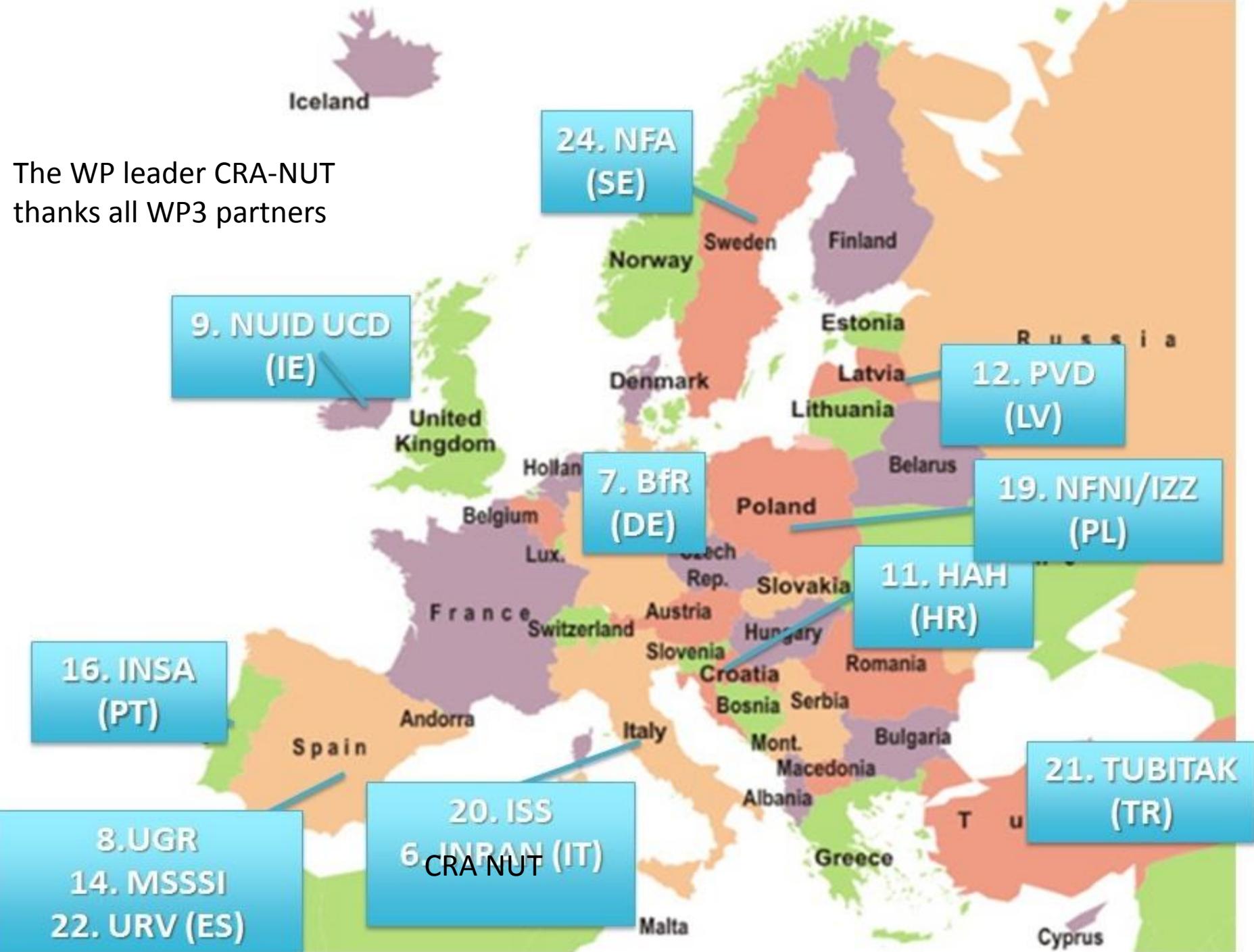
Comparing the results with food monitoring and regulatory information

Discussing feasibility together with researcher performing pilot studies



Iceland

The WP leader CRA-NUT
thanks all WP3 partners



THANKS FOR YOUR ATTENTION