

## How to establish a well-documented protocol for sampling and analysis

This process serves to ensure that the data generated meet the objectives of the compilers and the requirements of the database users. For food composition, stratified sampling is the most used method and only in few cases convenient sampling is acceptable (e.g. for wild foods). The size and number of samples should be determined together with a statistician (for representativeness) and with the analysts (to assure that enough foods were collected to carry out all analyses).

The protocols for example should describe:

- precisely which foods should be collected and where;
- how food samples are described: at the sampling site, etiquettes should be used to ensure the identification of the samples, which is necessary for tracing the analysed sample back to the collected food;
- how foods should be transported (e.g. in bag, frozen, transported by car or plane);
- how foods should be stored, as well as describe where and how (temperature, light etc);
- how they should be handled before analysis (e.g. cut, grinded, homogenized etc).

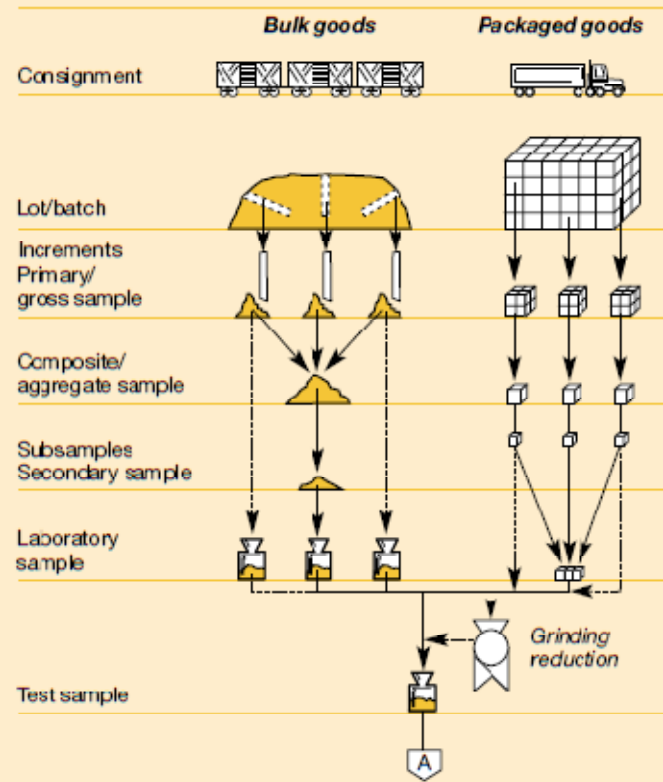
Last, but not least, it should include a description of the preparation of the analytical portions which are then immediately analysed or stored again before analysis.

Sampling foods for inclusion in a FCT/FCDB is one of the more demanding and difficult aspect of the FCT/FCDB preparation and often requires the compilers to make intuitive judgements and compromises, because the necessary data are not available (e.g. natural variation of values; number and names and market share of the different brandnames per food).

All those interested in carrying out sampling and establishing a sampling and analytical plan should further study chapter 5 of the book of Greenfield and Southgate, Food composition data – production, management and use (<http://ftp.fao.org/docrep/fao/008/y4705e/y4705e00.pdf>), module 5 of the Food Composition Study Guide (<http://www.fao.org/infoods/infoods/training/en/>) and related scientific articles or reports.

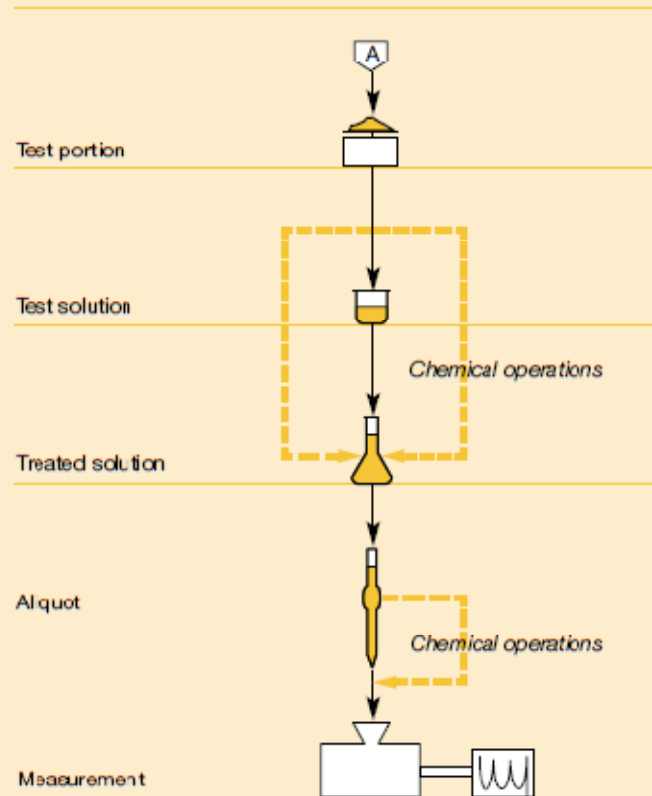
**Figure 5.1** The relationships of the operations involved in sampling and analysis  
*The lower A of the sampling operations continues with the upper A of the analytical operations*

### SAMPLING OPERATIONS



Source: IUPAC recommendations from Horwitz, 1990.

### ANALYTICAL OPERATIONS (no sampling errors)



Source: Greenfield and Southgate, 2003